# CDR Mini System FW-R88/21/22/37

Service
Service
Service

# Service Manual

## SERVICING

**For servicing FW-R88, the set can be divided into two parts:**

1. Except for the CD-R/W module all workshops can repair the set on component level.

2. The **CD-R/W module** can also be repaired at component level with the help of COMPAIR Release 1.6 and higher.
   With this tool the diagnosing of the set can be done in an interactive way. In the tool also the adjustment procedure has been implemented. This is absolutely necessary in case the CDR MainBoard and/or (CDR Loader) CDM is disconnected from the matched production combination.

   **Only designated workshops can perform these repairs.**
   Please send the complete FW-R88 to the designated workshop.

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CLASS 1
LASER PRODUCT

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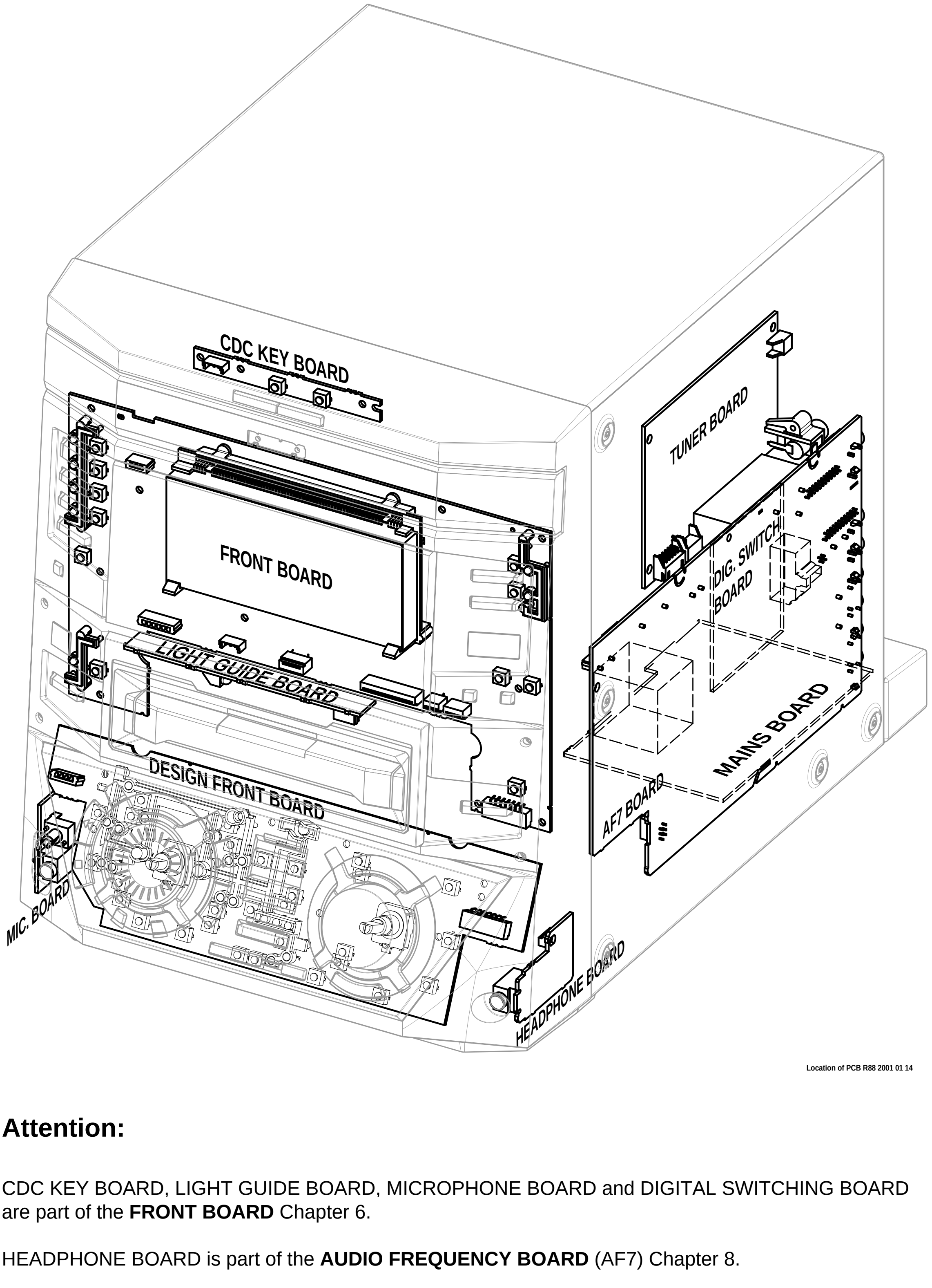
GB 3103 785 25080

PHILIPS

# Location of Printed Circuit Boards


CDC KEY BOARD
TUNER BOARD
FRONT BOARD
DIG. SWITCH BOARD
LIGHT GUIDE BOARD
MAINS BOARD
DESIGN FRONT BOARD
AF7 BOARD
MIC. BOARD
HEADPHONE BOARD

Location of PCB R88 2001 01 14

## Attention:

CDC KEY BOARD, LIGHT GUIDE BOARD, MICROPHONE BOARD and DIGITAL SWITCHING BOARD are part of the **FRONT BOARD** Chapter 6.

HEADPHONE BOARD is part of the **AUDIO FREQUENCY BOARD** (AF7) Chapter 8.

# Technical Specification

## General:

Mains voltage : 120 / 240V switchable (for /21)
: 230V (for /22)
: 120V (for /37)
Mains frequency : 50 ~ 60Hz
Power consumption : 155W at 1/8 $P_{RATED}$
: 350W at max output
: ≤15W at Stand by
: ≤2W at ECO Stand by

## Tuner:

**FM**
Tuning range : 87.5MHz - 108MHz
Grid : 100kHz
IF : 10.7MHz
Aerial input : 75Ω
Sensitivity Mono : < 7µV (26dB S/N)
d (RF=1mV,∆f=75kHz) : 3% - typ. 2%
IF rejection : > 60dB
Image rejection : > 25dB
-3dB Limiting Point : < 23.5dBf

**MW**
Tuning range : 531kHz - 1062kHz
Grid : 9kHz
IF : 450kHz ±1kHz
Sensitivity at 26dB S/N : < 4.0mV/m
d (RF=50mV,m=80%) : < 5% - typ. 3%
IF rejection : > 45dB
Image rejection : > 28dB

## Amplifier:

Output power : 2 x 100W at 6Ω not for /37
2 x 150W at 6Ω for /37 only
Headphone : 3.5mm stereo jack
Frequency response : 20Hz - 20kHz (-3dB) Limit
Equalizer : Digital Sound Control

**Input sensitivity**
Aux/Line : 500mV ±2dB
Microphone : 2.5mV ±2dB at 1kHz

## CDC unit:

Frequency response within : 20Hz - 20kHz at ±3dB
Signal/Noise ratio : > 94dB (A-weighted)
Distortion at 1kHz,0dB : -90dB
Channel unbalance : < 0.3dB
Channel crosstalk at 1kHz : -60dB
De-emphasis : 0 or 15/50 µS
**Laser**
Output power : ≤500µW
Wave length : 780nm ±20nm

## CDR unit:

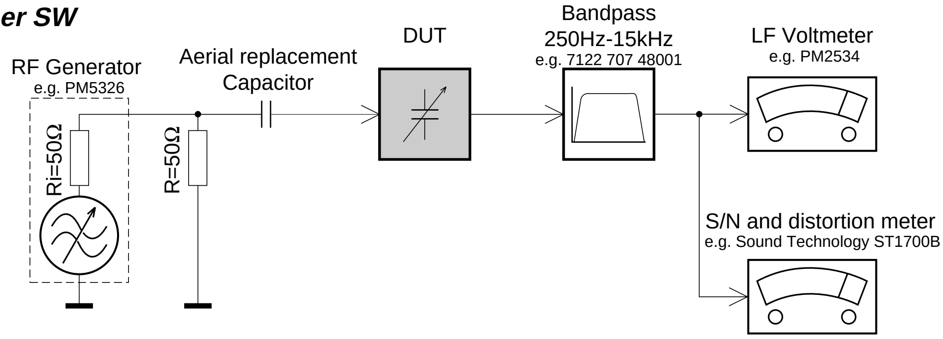
*CD Playback:*
Frequency response within : 20Hz - 20kHz at ±3dB
Signal/Noise ratio : > 90dB (A-weighted)
Distortion at 1kHz,0dB : -80dB
Channel unbalance : < 1dB
Channel crosstalk at 1kHz : -60dB
De-emphasis : 0 or 15/50 µS

*Analog recording - digital playback:*
Frequency response within : 20Hz - 20kHz at ±3dB
Signal/Noise ratio : > 84dB (A-weighted)
Distortion at 1kHz,0dB : -77dB
Channel unbalance : < 1dB
Channel crosstalk at 1kHz : -60dB
De-emphasis : 0 or 15/50 µS

**Laser**
Output power : ≤1mW during reading
: ≤20mW during writing
**Laser class 3B**
Wave length : 780nm ±20nm

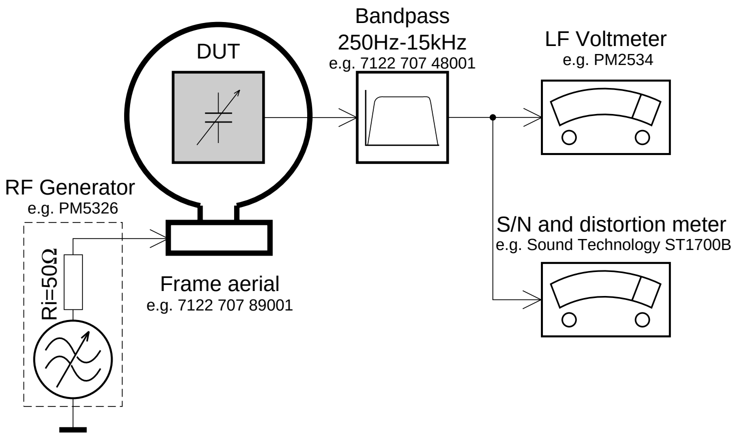
# Measurement Setup

### Tuner SW


RF Generator
e.g. PM5326
Ri=50Ω
R=50Ω
Aerial replacement
Capacitor
DUT
Bandpass
250Hz-15kHz
e.g. 7122 707 48001
LF Voltmeter
e.g. PM2534
S/N and distortion meter
e.g. Sound Technology ST1700B

To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

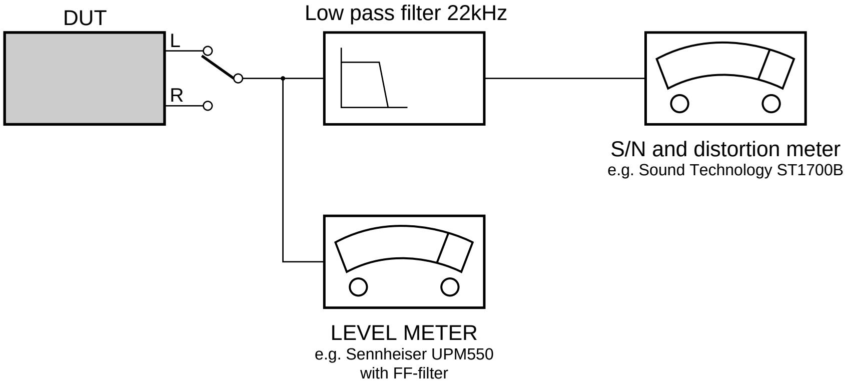
### Tuner AM (MW,LW)


DUT
Bandpass
250Hz-15kHz
e.g. 7122 707 48001
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
Frame aerial
e.g. 7122 707 89001
S/N and distortion meter
e.g. Sound Technology ST1700B

To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.

### CD

Use Audio Signal Disc SBC429     4822 397 30184 (replaces test disc 3)
L.P.F. = 13 $^{th}$ order filter  4822 395 30204


DUT
L
R
Low pass filter 22kHz
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

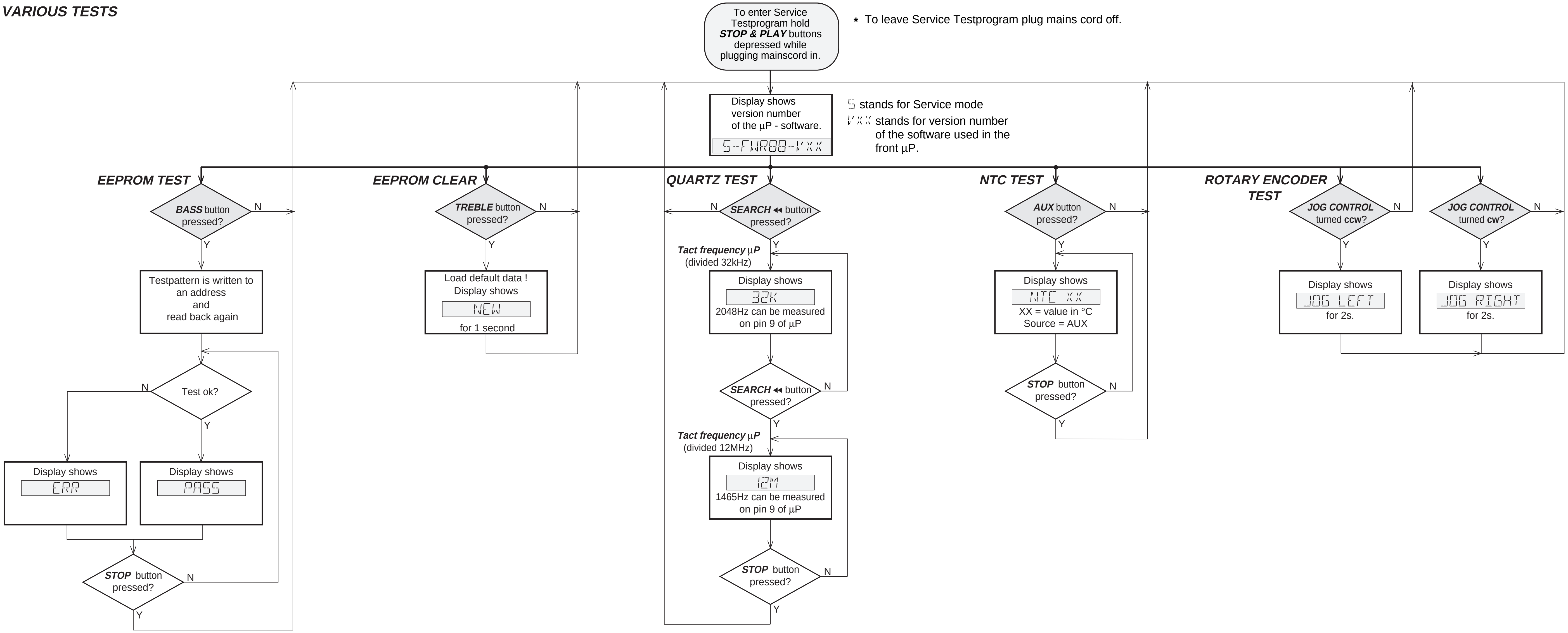
# RC5 Codes

| *Remote control key* | *System Code* | *Command Code* | *Remote control key* | *System Code* | *Command Code* |
|---|---|---|---|---|---|
| Standby | 17, 20, 21, 26 | 12 | SLEEP | 16 | 38 |
| CD1 | 20 | 55 | DIM | 16 | 71 |
| CD2 | 20 | 56 | REPEAT | 20, 26 | 29 |
| CD3 | 20 | 57 | SHUFFLE | 20, 26 | 28 |
| CDR | 26 | 63 | TRACK INCREMENT | 26 | 114 |
| Tuner | 17 | 63 | VOLUME + | 16 | 16 |
| Aux | 21 | 63 | VOLUME - | 16 | 17 |
| 1 (ABC) | 17,20, 21, 26 | 01 | ► | 20, 26 | 53 |
| 2 (DEF) | 17,20, 21, 26 | 02 | ❚❚ | 20, 26 | 48 |
| 3 (GHI) | 17,20, 21, 26 | 03 | ⏮ | 17,20, 21, 26 | 33 |
| 4 (JKL) | 17,20, 21, 26 | 04 | ⏭ | 17,20, 21, 26 | 32 |
| 5 (MN) | 17,20, 21, 26 | 05 | ◄◄ **CD, CDR MODE** | 20, 26 | 50 |
| 6 (OPQ) | 17,20, 21, 26 | 06 | ◄◄ **AUX, TUNER MODE** | 17, 21 | 31 |
| 7 (RST) | 17,20, 21, 26 | 07 | ►► **CD, CDR MODE** | 20, 26 | 52 |
| 8 (UVW) | 17,20, 21, 26 | 08 | ►► **AUX, TUNER MODE** | 17, 21 | 30 |
| 9 (XYZ) | 17,20, 21, 26 | 09 | ■ | 20, 26 | 54 |
| 0 (Space) | 17,20, 21, 26 | 00 | INCREDIBLE SURROUND | 16 | 64 |
| YES | 17,20, 21, 26 | 87 | PURE | 16 | 52 |
| NO | 17,20, 21, 26 | 49 | LOUDNESS | 16 | 50 |
| EDIT (TEXT) | 17,20, 21, 26 | 82 | BALANCE L | 16 | 27 |
| PROGRAM | 20, 26 | 36 | BALANCE R | 16 | 26 |
| PROGRAM **TUNER MODE** | 17 | 122 | WOOX | 16 | 70 |
| MUTE | 16 | 13 | WOOX LEVEL | 16 | 118 |
| TIMER ON/OFF | 16 | 89 | | | |

# Technical Remarks

# SERVICE TESTPROGRAM

## *VARIOUS TESTS*


To enter Service Testprogram hold **STOP & PLAY** buttons depressed while plugging mainscord in.
Display shows version number of the µP - software.
S-FWR88-VXX
EEPROM TEST
BASS button pressed?
N
Y
Testpattern is written to an address and read back again
Test ok?
N
Y
Display shows
ERR
Display shows
PASS
STOP button pressed?
N
Y
EEPROM CLEAR
TREBLE button pressed?
N
Y
Load default data ! Display shows
NEW
for 1 second
QUARTZ TEST
SEARCH ◂◂ button pressed?
N
Y
Tact frequency µP (divided 32kHz)
Display shows
32K
2048Hz can be measured on pin 9 of µP
SEARCH ◂◂ button pressed?
N
Y
Tact frequency µP (divided 12MHz)
Display shows
12M
1465Hz can be measured on pin 9 of µP
STOP button pressed?
N
Y
NTC TEST
AUX button pressed?
N
Y
Display shows
NTC XX
XX = value in °C
Source = AUX
STOP button pressed?
N
Y
ROTARY ENCODER TEST
JOG CONTROL turned ccw?
N
Y
Display shows
JOG LEFT
for 2s.
JOG CONTROL turned cw?
N
Y
Display shows
JOG RIGHT
for 2s.

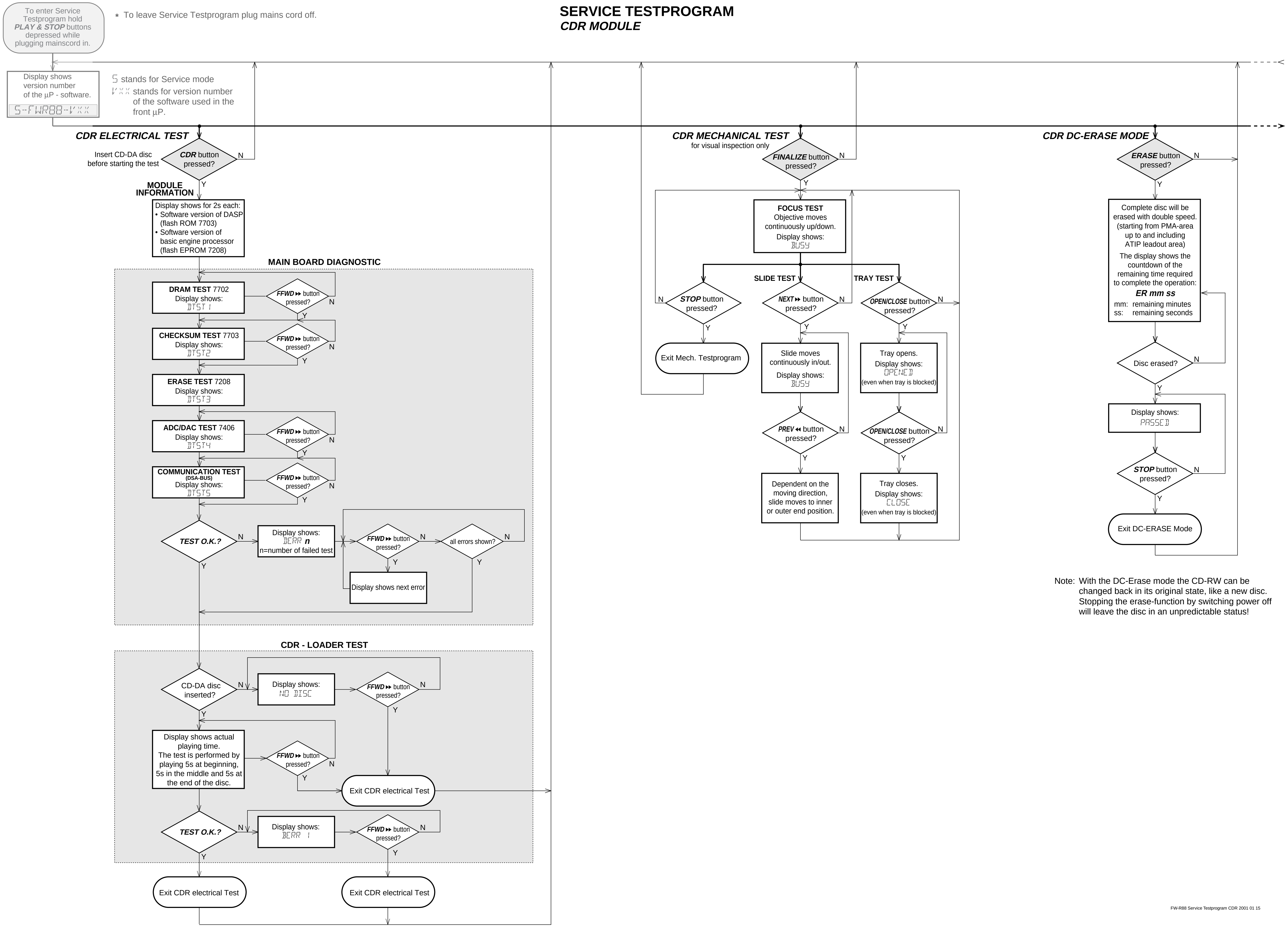
* To leave Service Testprogram plug mains cord off.

S stands for Service mode

VXX stands for version number of the software used in the front µP.

# SERVICE TESTPROGRAM

## *CDR MODULE*



⋆ To leave Service Testprogram plug mains cord off.

S stands for Service mode

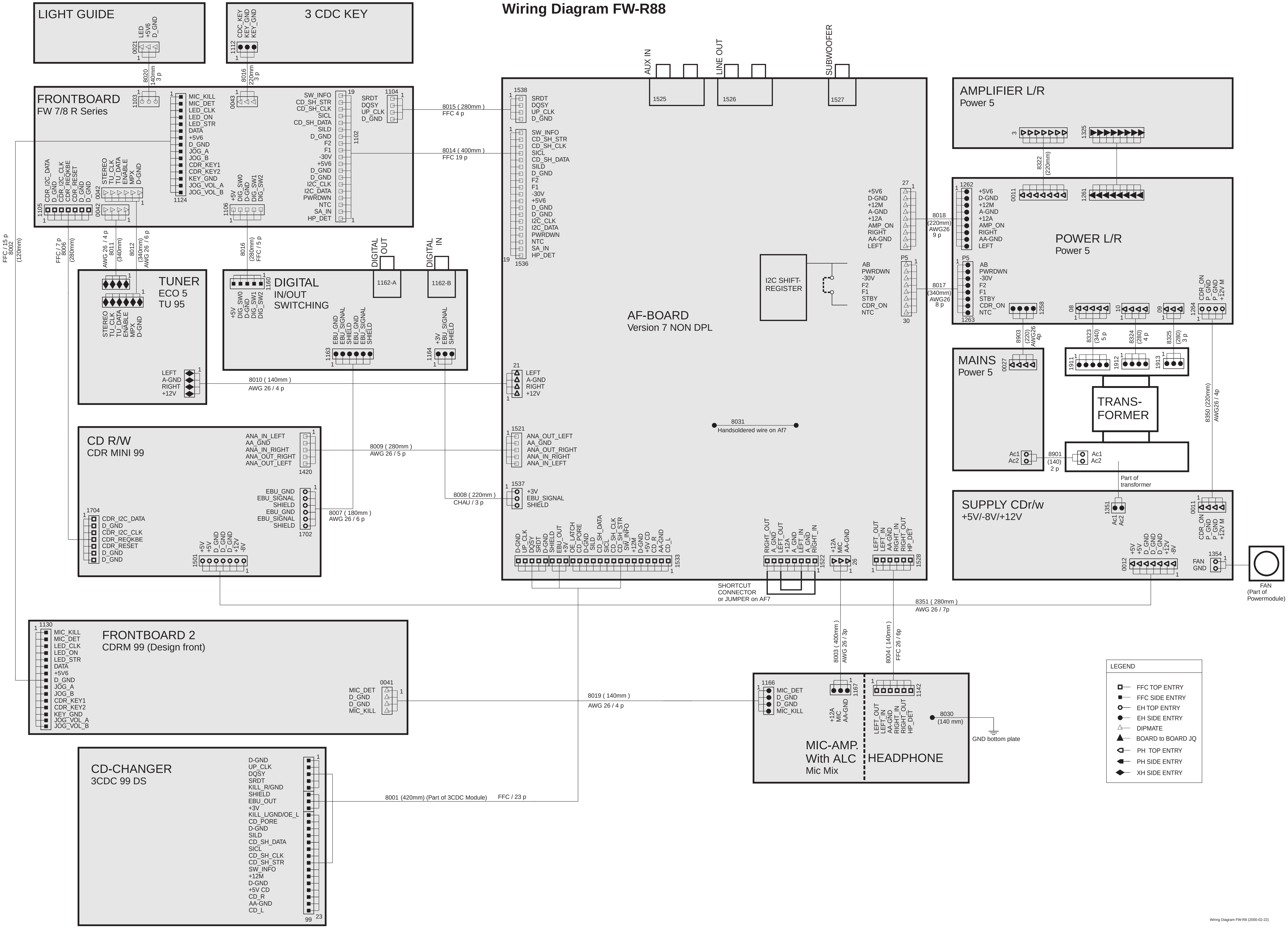
VXX stands for version number of the software used in the front µP.

Note: With the DC-Erase mode the CD-RW can be changed back in its original state, like a new disc. Stopping the erase-function by switching power off will leave the disc in an unpredictable status!

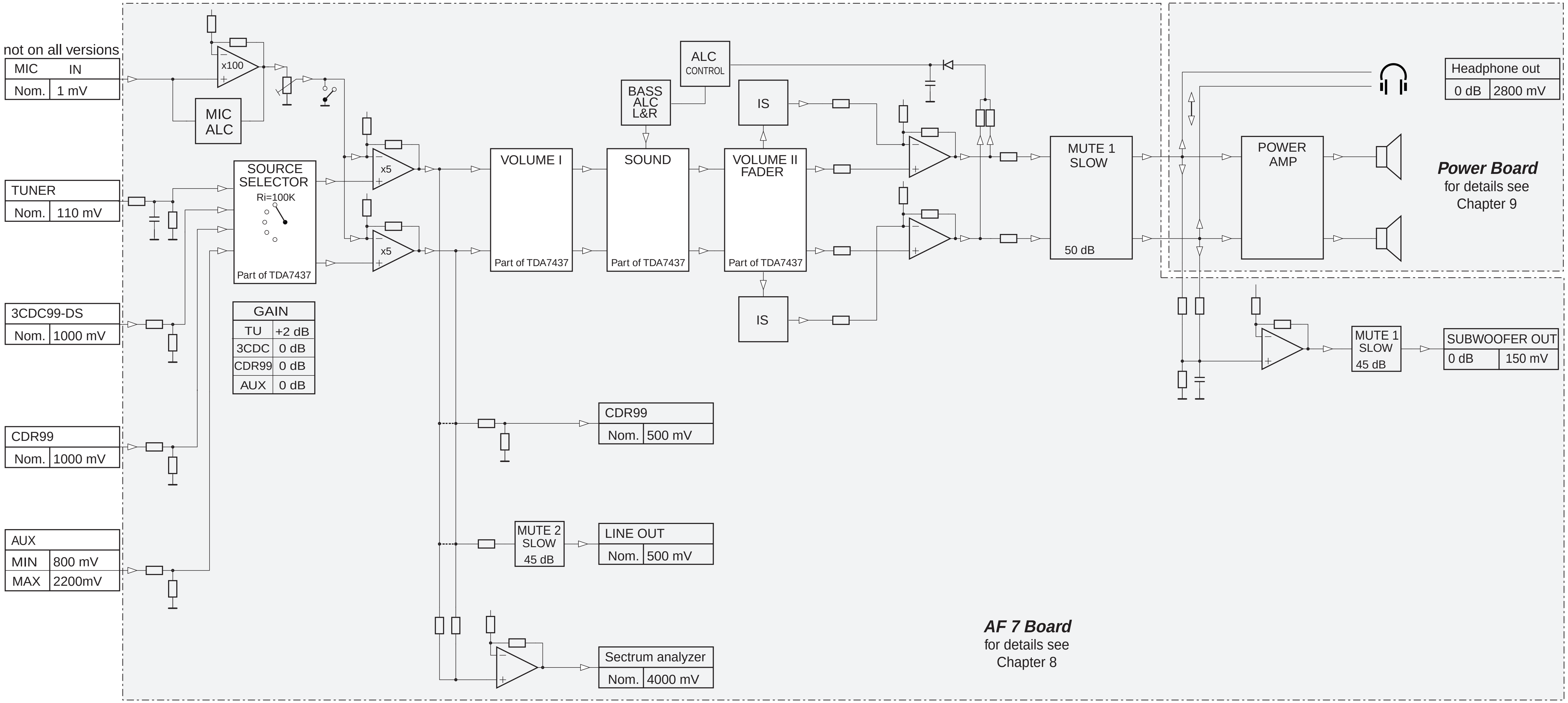
To enter Service Testprogram hold **PLAY & STOP** buttons depressed while plugging mainscord in.
Display shows version number of the µP - software.
S-FWR88-VXX
CDR ELECTRICAL TEST
Insert CD-DA disc before starting the test
CDR button pressed?
N
Y
MODULE INFORMATION
Display shows for 2s each:
• Software version of DASP (flash ROM 7703)
• Software version of basic engine processor (flash EPROM 7208)
MAIN BOARD DIAGNOSTIC
DRAM TEST 7702
Display shows:
DTST 1
FFWD ▸▸ button pressed?
CHECKSUM TEST 7703
Display shows:
DTST2
ERASE TEST 7208
Display shows:
DTST3
ADC/DAC TEST 7406
Display shows:
DTST4
COMMUNICATION TEST (DSA-BUS)
Display shows:
DTST5
TEST O.K.?
Display shows:
DERR n
n=number of failed test
all errors shown?
Display shows next error
CDR - LOADER TEST
CD-DA disc inserted?
Display shows:
NO DISC
Display shows actual playing time.
The test is performed by playing 5s at beginning, 5s in the middle and 5s at the end of the disc.
Exit CDR electrical Test
TEST O.K.?
Display shows:
BERR 1
Exit CDR electrical Test
Exit CDR electrical Test
CDR MECHANICAL TEST
for visual inspection only
FINALIZE button pressed?
FOCUS TEST
Objective moves continuously up/down.
Display shows:
BUSY
SLIDE TEST
TRAY TEST
STOP button pressed?
Exit Mech. Testprogram
NEXT ▸▸ button pressed?
Slide moves continuously in/out.
Display shows:
BUSY
PREV ◂◂ button pressed?
Dependent on the moving direction, slide moves to inner or outer end position.
OPEN/CLOSE button pressed?
Tray opens.
Display shows:
OPENED
(even when tray is blocked)
OPEN/CLOSE button pressed?
Tray closes.
Display shows:
CLOSE
(even when tray is blocked)
CDR DC-ERASE MODE
ERASE button pressed?
Complete disc will be erased with double speed. (starting from PMA-area up to and including ATIP leadout area)
The display shows the countdown of the remaining time required to complete the operation:
ER mm ss
mm: remaining minutes
ss: remaining seconds
Disc erased?
Display shows:
PASSED
STOP button pressed?
Exit DC-ERASE Mode

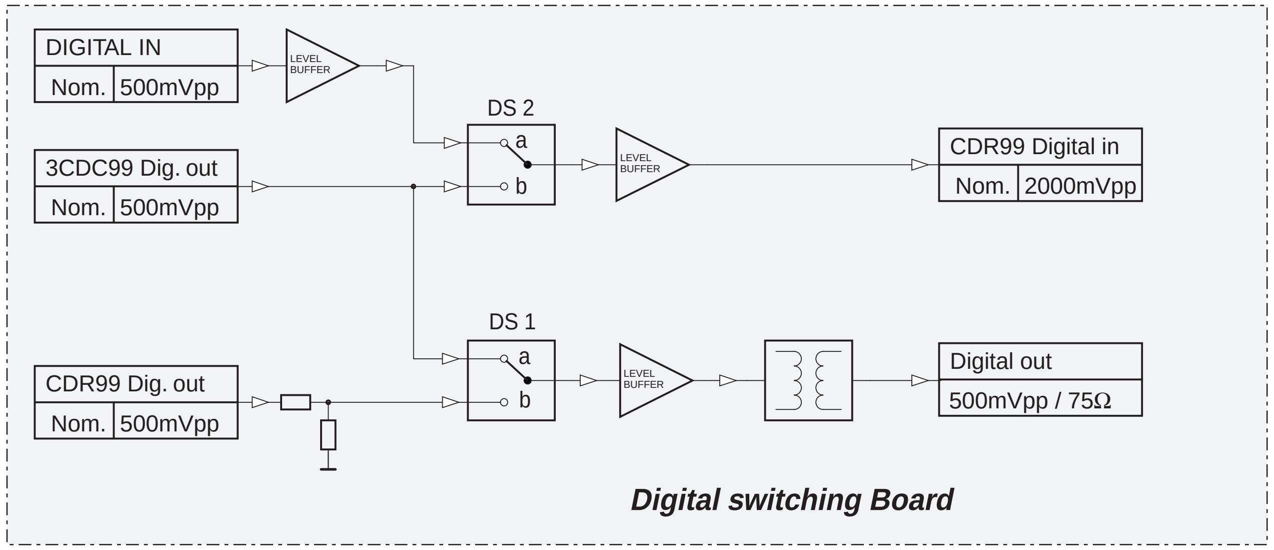
FW-R88 Service Testprogram CDR 2001 01 15

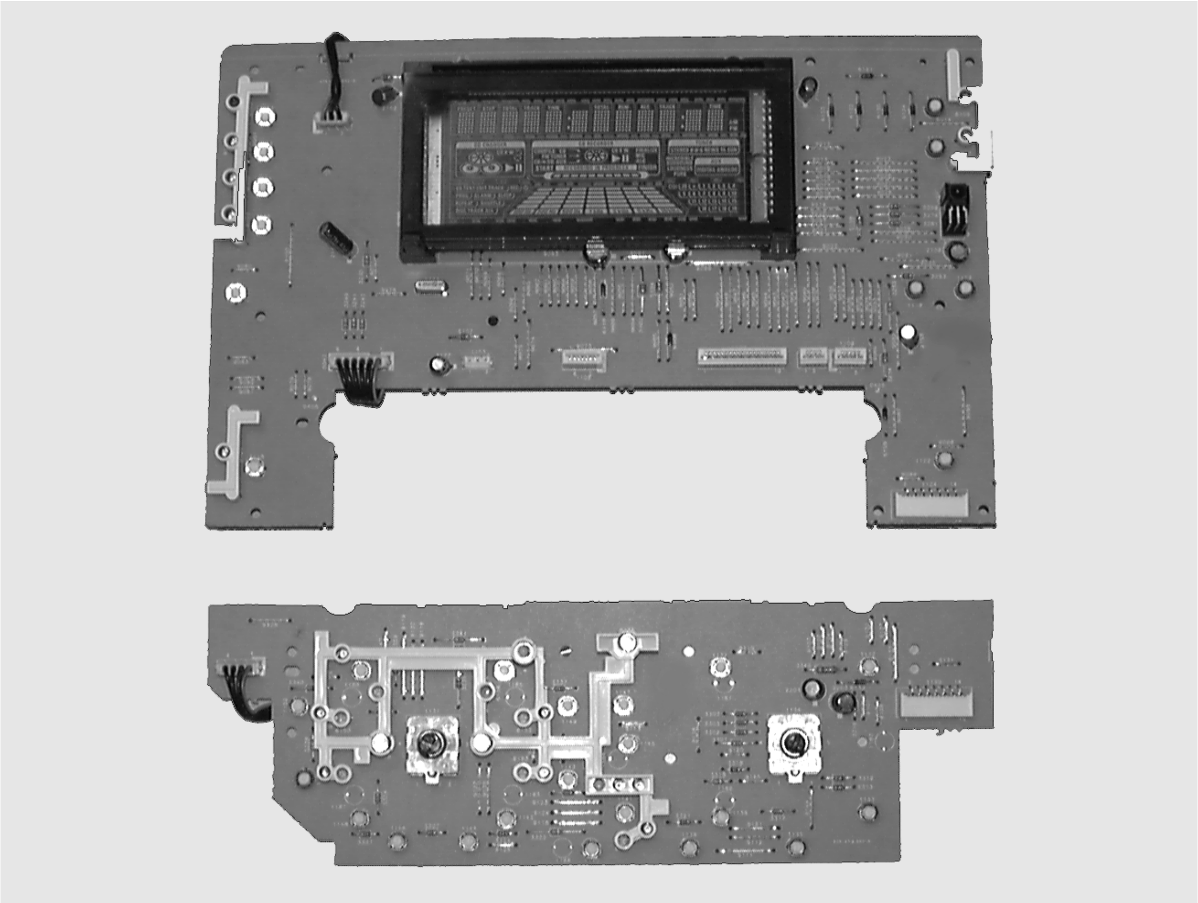
# Wiring Diagram FW-R88


LIGHT GUIDE
0021
LED
+5V6
D_GND
8020
140mm
3 p
3 CDC KEY
1112
CDC_KEY
KEY_GND
KEY_GND
8016
220mm
3 p
FRONTBOARD
FW 7/8 R Series
1103
0043
1124
MIC_KILL
MIC_DET
LED_CLK
LED_ON
LED_STR
DATA
+5V6
D_GND
JOG_A
JOG_B
CDR_KEY1
CDR_KEY2
KEY_GND
JOG_VOL_A
JOG_VOL_B
1102
SW_INFO
CD_SH_STR
CD_SH_CLK
SICL
CD_SH_DATA
SILD
D_GND
F2
F1
-30V
+5V6
D_GND
D_GND
I2C_CLK
I2C_DATA
PWRDWN
NTC
SA_IN
HP_DET
1104
SRDT
DQSY
UP_CLK
D_GND
8015 ( 280mm )
FFC 4 p
8014 ( 400mm )
FFC 19 p
1105
CDR_I2C_DATA
D_GND
CDR_I2C_CLK
CDR_REQKBE
CDR_RESET
D_GND
D_GND
0042
STEREO
TU_CLK
TU_DATA
ENABLE
MPX
D-GND
1106
+5V
DIG_SW0
D-GND
DIG_SW1
DIG_SW2
FFC / 15 p
8002
(120mm)
FFC / 7 p
8006
(280mm)
AWG 26 / 4 p
8011
(340mm)
8012
(340mm)
AWG 26 / 6 p
8016
(280mm)
FFC / 5 p
TUNER
ECO 5
TU 95
STEREO
TU_CLK
TU_DATA
ENABLE
MPX
D-GND
LEFT
A-GND
RIGHT
+12V
DIGITAL
IN/OUT
SWITCHING
1160
+5V
DIG_SW0
D-GND
DIG_SW1
DIG_SW2
DIGITAL OUT
DIGITAL IN
1162-A
1162-B
1163
EBU_GND
EBU_SIGNAL
SHIELD
EBU_GND
EBU_SIGNAL
SHIELD
1164
+3V
EBU_SIGNAL
SHIELD
8010 ( 140mm )
AWG 26 / 4 p
CD R/W
CDR MINI 99
1420
ANA_IN_LEFT
AA_GND
ANA_IN_RIGHT
ANA_OUT_RIGHT
ANA_OUT_LEFT
8009 ( 280mm )
AWG 26 / 5 p
1702
EBU_GND
EBU_SIGNAL
SHIELD
EBU_GND
EBU_SIGNAL
SHIELD
8007 ( 180mm )
AWG 26 / 6 p
8008 ( 220mm )
CHAU / 3 p
1704
CDR_I2C_DATA
D_GND
CDR_I2C_CLK
CDR_REQKBE
CDR_RESET
D_GND
D_GND
1501
+5V
+5V
D_GND
D_GND
D_GND
+12V
-8V
AUX IN
LINE OUT
SUBWOOFER
1525
1526
1527
AF-BOARD
Version 7 NON DPL
1538
SRDT
DQSY
UP_CLK
D_GND
1536
SW_INFO
CD_SH_STR
CD_SH_CLK
SICL
CD_SH_DATA
SILD
D_GND
F2
F1
-30V
+5V6
D_GND
D_GND
I2C_CLK
I2C_DATA
PWRDWN
NTC
SA_IN
HP_DET
27
+5V6
D-GND
+12M
A-GND
+12A
AMP_ON
RIGHT
AA-GND
LEFT
I2C SHIFT-REGISTER
P5
AB
PWRDWN
-30V
F2
F1
STBY
CDR_ON
NTC
30
21
LEFT
A-GND
RIGHT
+12V
1521
ANA_OUT_LEFT
AA_GND
ANA_OUT_RIGHT
ANA_IN_RIGHT
ANA_IN_LEFT
8031
Handsoldered wire on Af7
1537
+3V
EBU_SIGNAL
SHIELD
1533
D-GND
UP_CLK
DQSY
SRDT
D-GND
SHIELD
EBU_OUT
+3V
OE_LATCH
CD_PORE
D-GND
SILD
CD_SH_DATA
SICL
CD_SH_CLK
CD_SH_STR
SW_INFO
+12M
D-GND
+5V CD
CD_R
AA-GND
CD_L
1522
RIGHT_OUT
A_GND
LEFT_OUT
+12A
A_GND
LEFT_IN
A_GND
RIGHT_IN
26
+12A
MIC
AA-GND
1528
LEFT_OUT
LEFT_IN
AA-GND
RIGHT_IN
RIGHT_OUT
HP_DET
SHORTCUT
CONNECTOR
or JUMPER on AF7
AMPLIFIER L/R
Power 5
3
1325
8322
(220mm)
POWER L/R
Power 5
0011
1261
1262
+5V6
D-GND
+12M
A-GND
+12A
AMP_ON
RIGHT
AA-GND
LEFT
8018
(220mm)
AWG26
9 p
8017
(340mm)
AWG26
8 p
1263
AB
PWRDWN
-30V
F2
F1
STBY
CDR_ON
NTC
1258
08
10
09
1264
CDR_ON
P_GND
P_GND
+12V M
8903
(220)
AWG26
4p
8323
(340)
5 p
8324
(280)
4 p
8325
(280)
3 p
MAINS
Power 5
0027
1911
1912
1913
TRANS-FORMER
Ac1
Ac2
8901
(140)
2 p
Ac1
Ac2
Part of transformer
8350 (220mm)
AWG26 / 4p
SUPPLY CDr/w
+5V/-8V/+12V
1351
Ac1
Ac2
0011
CDR_ON
P_GND
P_GND
+12V M
0012
+5V
+5V
D_GND
D_GND
D_GND
+12V
-8V
FAN
GND
1354
FAN
(Part of Powermodule)
8351 ( 280mm )
AWG 26 / 7p
8003 ( 400mm )
AWG 26 / 3p
8004 ( 140mm )
FFC 26 / 6p
FRONTBOARD 2
CDRM 99 (Design front)
1130
MIC_KILL
MIC_DET
LED_CLK
LED_ON
LED_STR
DATA
+5V6
D_GND
JOG_A
JOG_B
CDR_KEY1
CDR_KEY2
KEY_GND
JOG_VOL_A
JOG_VOL_B
0041
MIC_DET
D_GND
D_GND
MIC_KILL
8019 ( 140mm )
AWG 26 / 4 p
1166
MIC_DET
D_GND
D_GND
MIC_KILL
1167
+12A
MIC
AA-GND
1142
LEFT_OUT
LEFT_IN
AA-GND
RIGHT_IN
RIGHT_OUT
HP_DET
8030
(140 mm)
GND bottom plate
MIC-AMP.
With ALC
Mic Mix
HEADPHONE
CD-CHANGER
3CDC 99 DS
D-GND
UP_CLK
DQSY
SRDT
KILL_R/GND
SHIELD
EBU_OUT
+3V
KILL_L/GND/OE_L
CD_PORE
D-GND
SILD
CD_SH_DATA
SICL
CD_SH_CLK
CD_SH_STR
SW_INFO
+12M
D-GND
+5V CD
CD_R
AA-GND
CD_L
99
23
8001 (420mm) (Part of 3CDC Module)
FFC / 23 p
LEGEND
FFC TOP ENTRY
FFC SIDE ENTRY
EH TOP ENTRY
EH SIDE ENTRY
DIPMATE
BOARD to BOARD JQ
PH TOP ENTRY
PH SIDE ENTRY
XH SIDE ENTRY

## Block / Leveldiagram


not on all versions
MIC IN
Nom. 1 mV
x100
MIC ALC
TUNER
Nom. 110 mV
3CDC99-DS
Nom. 1000 mV
CDR99
Nom. 1000 mV
AUX
MIN 800 mV
MAX 2200mV
SOURCE SELECTOR
Ri=100K
Part of TDA7437
GAIN
TU +2 dB
3CDC 0 dB
CDR99 0 dB
AUX 0 dB
x5
x5
VOLUME I
Part of TDA7437
BASS ALC L&R
SOUND
Part of TDA7437
ALC CONTROL
IS
VOLUME II FADER
Part of TDA7437
IS
MUTE 1 SLOW
50 dB
POWER AMP
Headphone out
0 dB
2800 mV
Power Board
for details see
Chapter 9
MUTE 1 SLOW
45 dB
SUBWOOFER OUT
0 dB
150 mV
CDR99
Nom. 500 mV
MUTE 2 SLOW
45 dB
LINE OUT
Nom. 500 mV
Sectrum analyzer
Nom. 4000 mV
AF 7 Board
for details see
Chapter 8


DIGITAL IN
Nom. 500mVpp
LEVEL BUFFER
3CDC99 Dig. out
Nom. 500mVpp
DS 2
a
b
LEVEL BUFFER
CDR99 Digital in
Nom. 2000mVpp
CDR99 Dig. out
Nom. 500mVpp
DS 1
a
b
LEVEL BUFFER
Digital out
500mVpp / 75Ω
Digital switching Board



# Front Board

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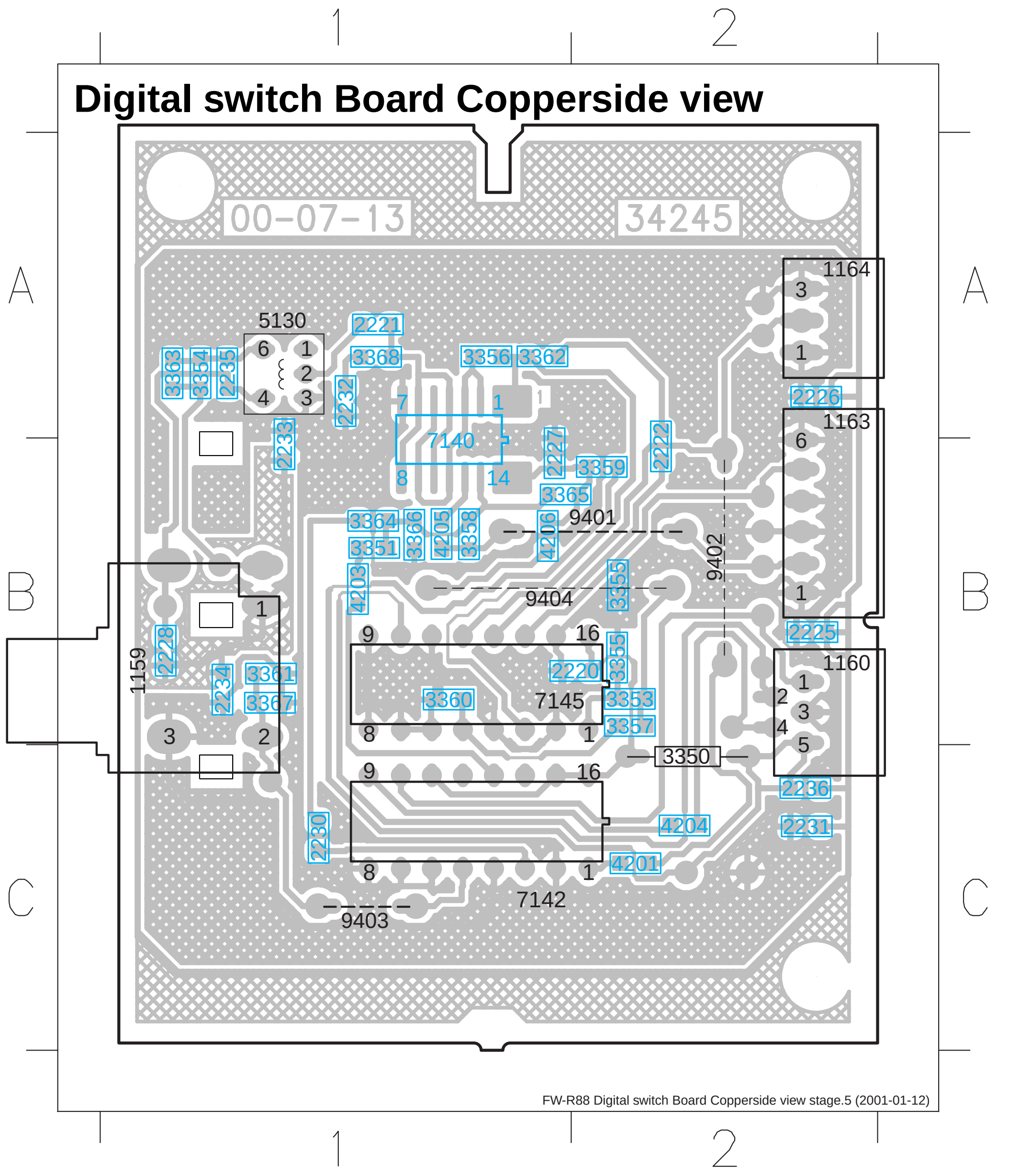
Component Layout.........................................................6-8
Circuit Diagram ............................................................6-9

**Microphone Board**

Component Layout.......................................................6-10
Circuit Diagram ...........................................................6-10
Electrical Partslist ..........................................................6-11

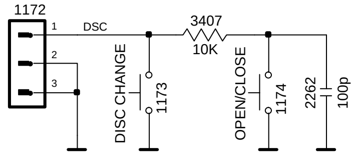
## Digital switch Board Copperside view


1
2
A
B
C
00-07-13
34245
5130
1164
1163
1160
1159
2221
3368
3356
3362
3363
3354
2235
2232
2233
7140
2227
2222
3359
3365
2226
3364
3366
4205
3358
4206
9401
3351
4203
9402
9404
3355
2225
2228
2234
3361
3367
3360
2220
7145
3353
3357
3350
2236
2230
4204
2231
4201
7142
9403

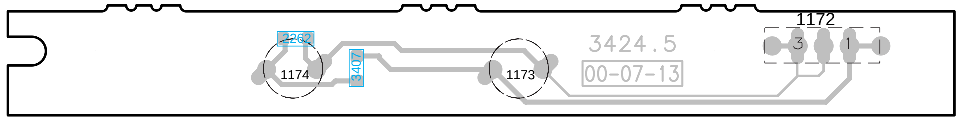
FW-R88 Digital switch Board Copperside view stage.5 (2001-01-12)

| | |
|---|---|
| 1159 | B1 |
| 1160 | B2 |
| 1163 | B2 |
| 1164 | A2 |
| 2220 | B2 |
| 2221 | A1 |
| 2222 | B2 |
| 2225 | B2 |
| 2226 | A2 |
| 2227 | A2 |
| 2228 | B1 |
| 2230 | C1 |
| 2231 | C2 |
| 2232 | A1 |
| 2233 | B1 |
| 2234 | B1 |
| 2235 | A1 |
| 2236 | C2 |
| 3350 | C2 |
| 3351 | B1 |
| 3353 | B2 |
| 3354 | A1 |
| 3355 | B2 |
| 3356 | A1 |
| 3357 | B2 |
| 3358 | B1 |
| 3359 | B2 |
| 3360 | B1 |
| 3361 | B1 |
| 3362 | A1 |
| 3363 | A1 |
| 3364 | B1 |
| 3365 | B1 |
| 3366 | B1 |
| 3367 | B1 |
| 3368 | A1 |
| 4201 | C2 |
| 4203 | B1 |
| 4204 | C2 |
| 4205 | B1 |
| 4206 | B1 |
| 5130 | A1 |
| 7140 | B1 |
| 7142 | C1 |
| 7145 | B1 |
| 9401 | B2 |
| 9402 | B2 |
| 9403 | C1 |
| 9404 | B1 |

## 3 CDC-Key

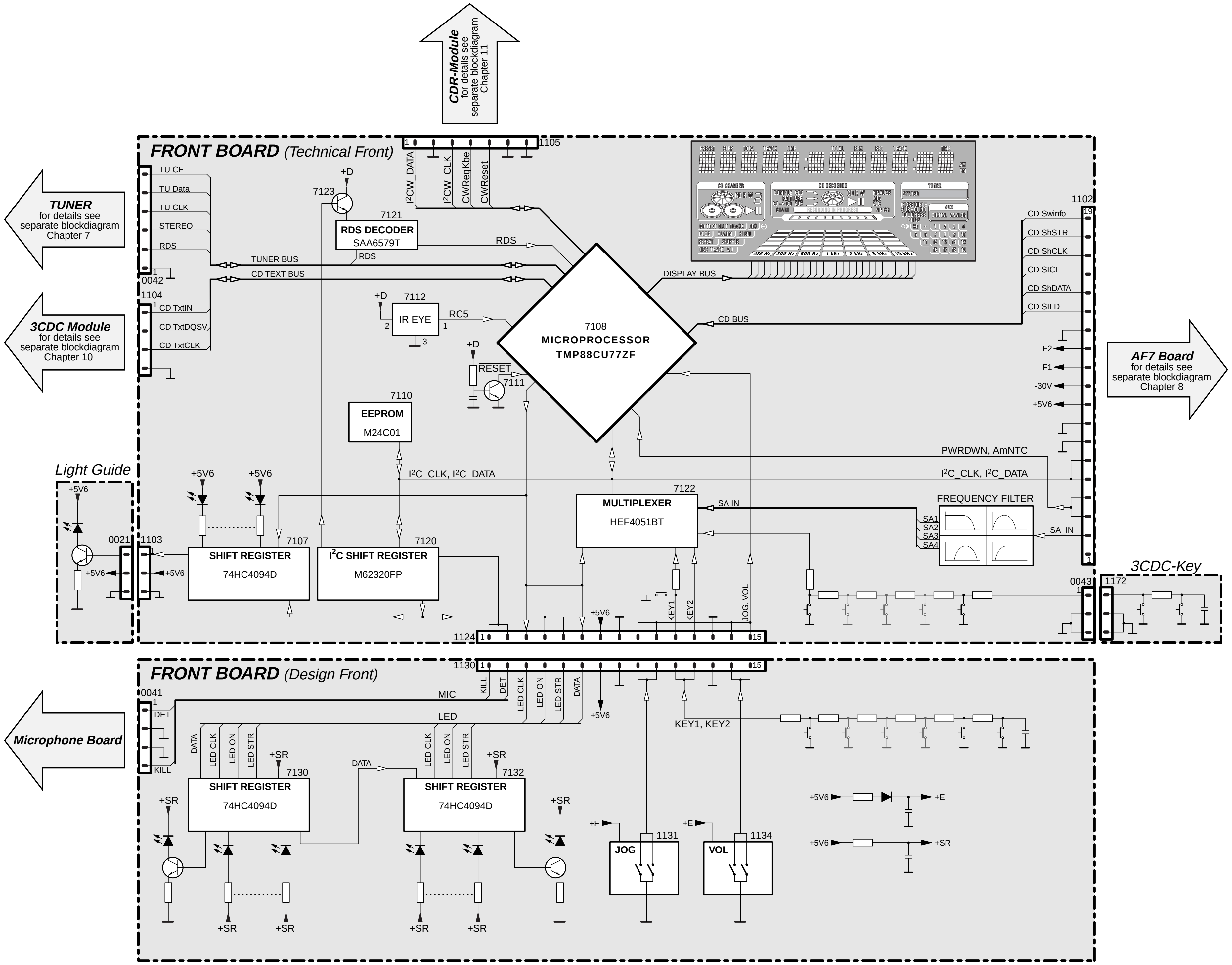

1172
1
2
3
DSC
3407
10K
DISC CHANGE
1173
OPEN/CLOSE
1174
2262
100p

## 3CDC Key Board Copperside view

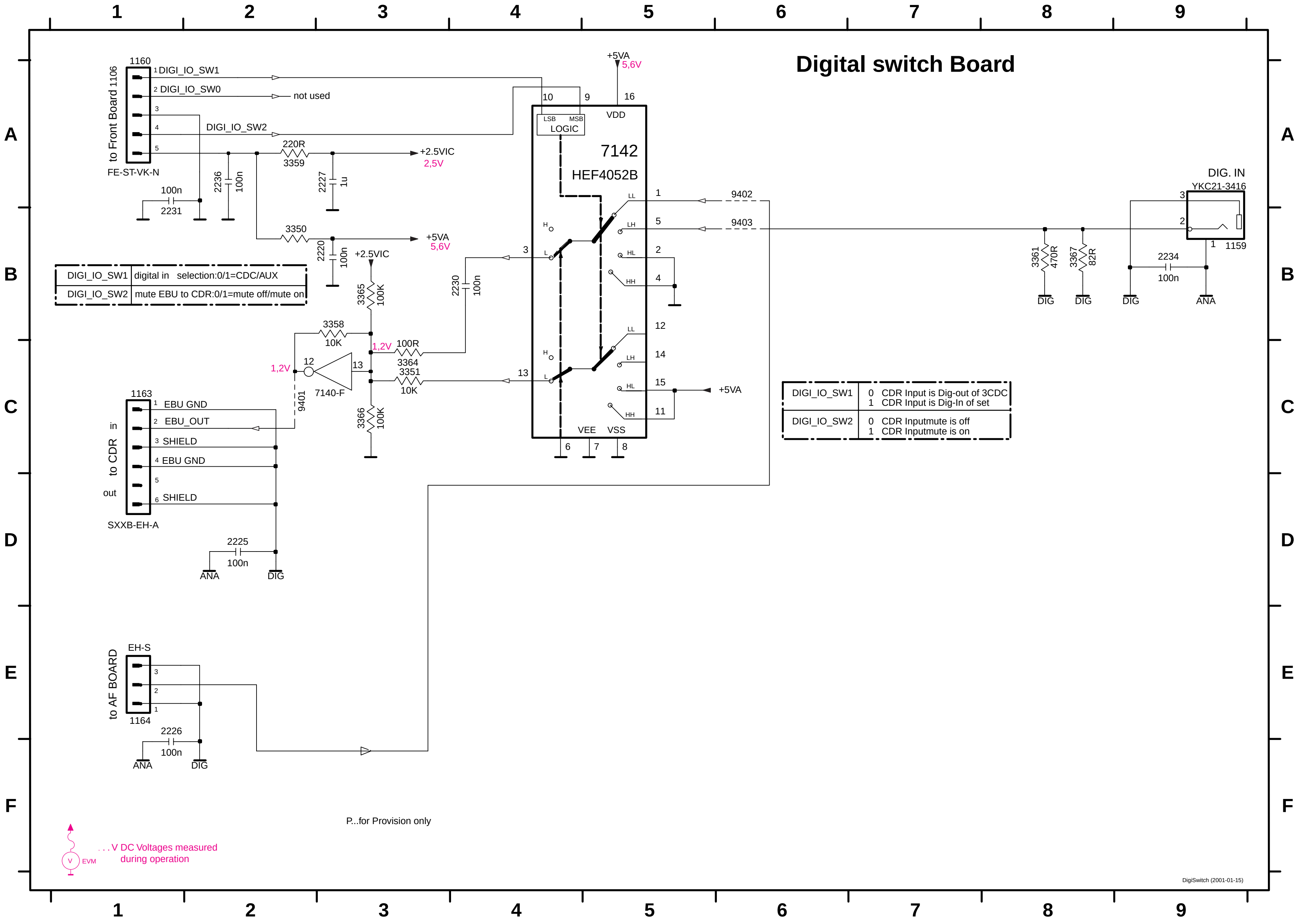

1172
3424.5
00-07-13
1174
1173
3
1

CDR-Mini 3CDC Key Board Copperside view stage .5 (2001-01-12)

# Blockdiagram


CDR-Module
for details see
separate blockdiagram
Chapter 11
FRONT BOARD (Technical Front)
1105
I2CW_DATA
I2CW_CLK
CWReqKbe
CWReset
TUNER
for details see
separate blockdiagram
Chapter 7
0042
TU CE
TU Data
TU CLK
STEREO
RDS
TUNER BUS
CD TEXT BUS
3CDC Module
for details see
separate blockdiagram
Chapter 10
1104
CD TxtIN
CD TxtDQSV
CD TxtCLK
+D
7123
7121
RDS DECODER
SAA6579T
RDS
7112
IR EYE
RC5
+D
RESET
7111
7108
MICROPROCESSOR
TMP88CU77ZF
DISPLAY BUS
CD BUS
7110
EEPROM
M24C01
1102
CD Swinfo
CD ShSTR
CD ShCLK
CD SICL
CD ShDATA
CD SILD
F2
F1
-30V
+5V6
AF7 Board
for details see
separate blockdiagram
Chapter 8
PWRDWN, AmNTC
I2C_CLK, I2C_DATA
I2C_CLK, I2C_DATA
Light Guide
0021
1103
+5V6
7107
SHIFT REGISTER
74HC4094D
7120
I2C SHIFT REGISTER
M62320FP
7122
MULTIPLEXER
HEF4051BT
SA IN
FREQUENCY FILTER
SA1
SA2
SA3
SA4
SA_IN
3CDC-Key
0043
1172
KEY1
KEY2
JOG_VOL
1124
1130
FRONT BOARD (Design Front)
0041
DET
KILL
MIC
LED
KILL
DET
LED CLK
LED ON
LED STR
DATA
+5V6
KEY1, KEY2
Microphone Board
DATA
LED CLK
LED ON
LED STR
+SR
7130
SHIFT REGISTER
74HC4094D
DATA
LED CLK
LED ON
LED STR
+SR
7132
SHIFT REGISTER
74HC4094D
+E
1131
JOG
+E
1134
VOL
+5V6
+E
+5V6
+SR
+SR

## Digital switch Board

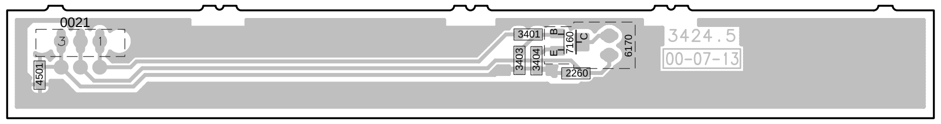

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
to Front Board 1106
1160
DIGI_IO_SW1
DIGI_IO_SW0
not used
DIGI_IO_SW2
FE-ST-VK-N
220R
3359
+2.5VIC
2,5V
2236
100n
2227
1u
100n
2231
3350
+5VA
5,6V
2220
100n
+2.5VIC
3365
100K
2230
100n
3358
10K
1,2V
100R
3364
3351
10K
12
13
7140-F
9401
3366
100K
+5VA
5,6V
10
9
16
VDD
LSB
MSB
LOGIC
7142
HEF4052B
LL
LH
HL
HH
1
5
2
4
3
12
14
15
11
+5VA
VEE
VSS
6
7
8
9402
9403
DIG. IN
YKC21-3416
1159
3361
470R
3367
82R
2234
100n
DIG
ANA
1163
to CDR
in
out
EBU GND
EBU_OUT
SHIELD
EBU GND
SHIELD
SXXB-EH-A
2225
100n
ANA
DIG
to AF BOARD
EH-S
1164
2226
100n
P...for Provision only
. . . V DC Voltages measured
during operation
EVM
DigiSwitch (2001-01-15)

| | | |
|---|---|---|
| DIGI_IO_SW1 | digital in | selection:0/1=CDC/AUX |
| DIGI_IO_SW2 | mute EBU to CDR:0/1=mute off/mute on | |

| | | |
|---|---|---|
| DIGI_IO_SW1 | 0<br>1 | CDR Input is Dig-out of 3CDC<br>CDR Input is Dig-In of set |
| DIGI_IO_SW2 | 0<br>1 | CDR Inputmute is off<br>CDR Inputmute is on |

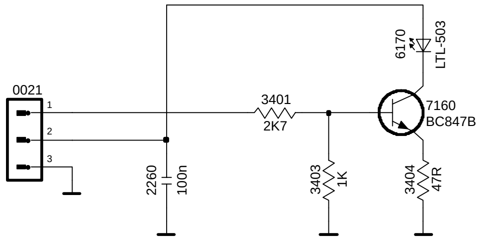
| | |
|---|---|
| 1160 | A1 |
| 1163 | C1 |
| 1164 | E1 |
| 2220 | B3 |
| 2225 | D2 |
| 2226 | E1 |
| 2227 | A3 |
| 2228 | E9 |
| 2230 | B4 |
| 2231 | B1 |
| 2234 | B9 |
| 2236 | A2 |
| 3350 | B2 |
| 3351 | C3 |
| 3358 | B3 |
| 3359 | A2 |
| 3361 | B8 |
| 3364 | C3 |
| 3365 | B3 |
| 3366 | C3 |
| 3367 | B8 |
| 7140-F | C3 |
| 7142 | A5 |
| 9401 | C2 |
| 9402 | A6 |
| 9403 | B6 |

## Light Guide Copperside view


0021
3401
3403
3404
7160
6170
2260
3424.5
00-07-13

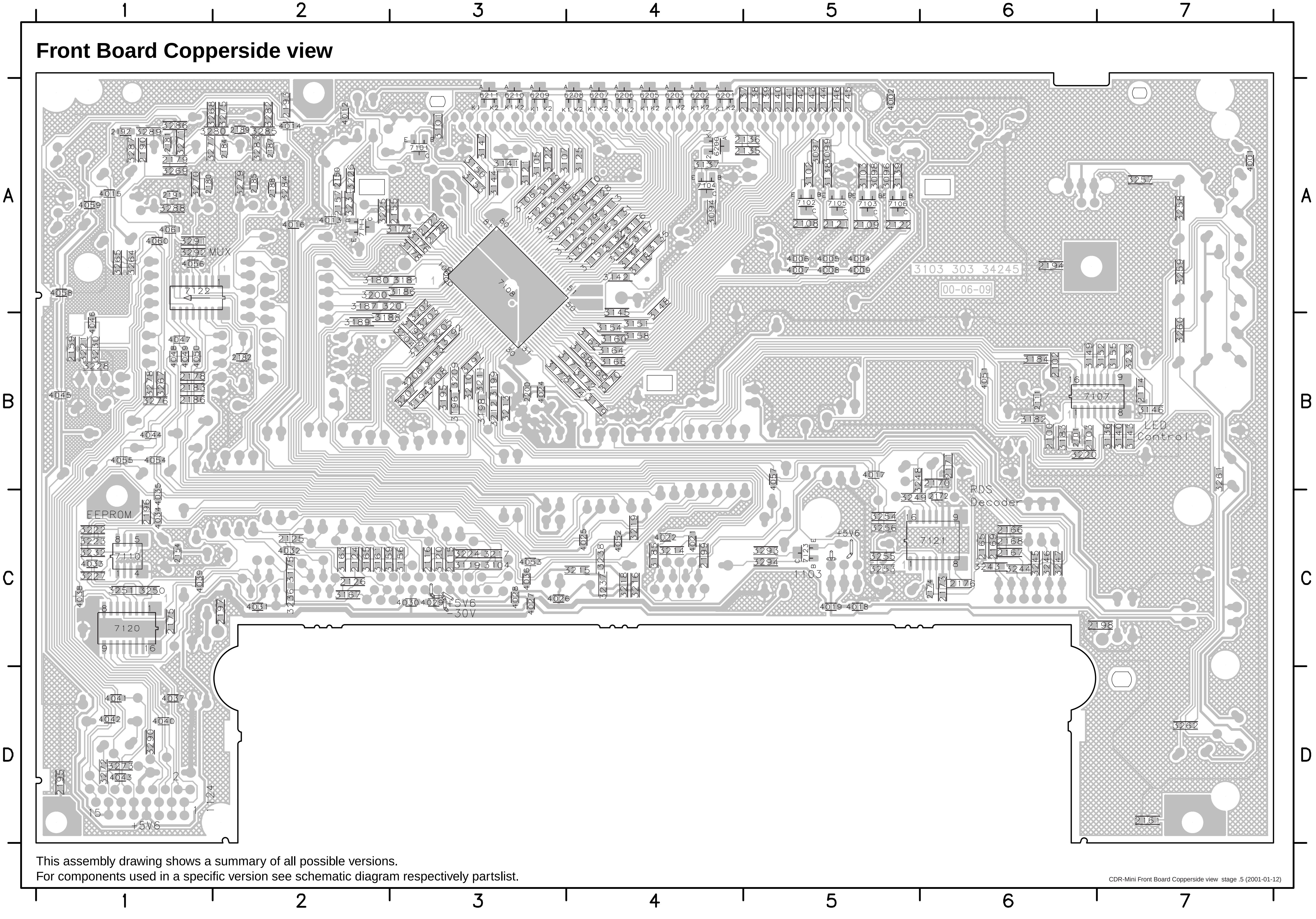
CDR-Mini LED Board Copperside view stage .5 (2001-01-12)

## Light Guide Board


0021
1
2
3
2260
100n
3401
2K7
3403
1K
6170
LTL-503
7160
BC847B
3404
47R

| Ref | Pos |
|---|---|
| 2100 | B6 |
| 2101 | B6 |
| 2102 | B6 |
| 2103 | B6 |
| 2108 | A5 |
| 2109 | A5 |
| 2111 | B6 |
| 2114 | B7 |
| 2115 | C3 |
| 2116 | C3 |
| 2121 | A5 |
| 2122 | A5 |
| 2124 | C2 |
| 2125 | C2 |
| 2126 | C2 |
| 2127 | A3 |
| 2128 | A3 |
| 2135 | A5 |
| 2136 | A5 |
| 2137 | A5 |
| 2138 | A5 |
| 2139 | A5 |
| 2140 | A5 |
| 2141 | A5 |
| 2142 | A5 |
| 2143 | A5 |
| 2144 | A5 |
| 2145 | A5 |
| 2146 | A5 |
| 2150 | A2 |
| 2154 | C1 |
| 2155 | A3 |
| 2157 | A2 |
| 2159 | B1 |
| 2161 | D7 |
| 2165 | C6 |
| 2166 | C6 |
| 2167 | C6 |
| 2168 | C6 |
| 2169 | C6 |
| 2170 | B6 |
| 2171 | B6 |
| 2172 | C6 |
| 2173 | C6 |
| 2174 | C6 |
| 2175 | C1 |
| 2176 | C6 |
| 2178 | B1 |
| 2179 | A1 |
| 2180 | A1 |
| 2181 | A1 |
| 2182 | B2 |
| 2183 | B1 |
| 2184 | A2 |
| 2185 | A2 |
| 2186 | B1 |
| 2187 | A2 |
| 2188 | A2 |
| 2189 | A2 |
| 2190 | A1 |
| 2191 | A1 |
| 2192 | A1 |
| 2193 | A2 |
| 2194 | A6 |
| 2195 | D1 |
| 2196 | C1 |
| 2197 | C2 |
| 2198 | C7 |
| 2199 | C4 |
| 2200 | B3 |
| 3094 | A4 |
| 3096 | A5 |
| 3097 | A5 |
| 3098 | A5 |
| 3099 | A5 |
| 3101 | A3 |
| 3102 | A5 |
| 3103 | A5 |
| 3104 | C3 |
| 3105 | A3 |
| 3106 | A3 |
| 3107 | A3 |
| 3108 | A3 |
| 3109 | A3 |
| 3110 | A4 |
| 3111 | A4 |
| 3112 | A3 |
| 3113 | A4 |
| 3114 | A4 |
| 3115 | A4 |
| 3116 | A4 |
| 3117 | A4 |
| 3118 | A4 |
| 3119 | C3 |
| 3120 | C3 |
| 3121 | A3 |
| 3122 | A3 |
| 3123 | A3 |
| 3124 | A3 |
| 3125 | A4 |
| 3126 | A4 |
| 3127 | A3 |
| 3128 | A4 |
| 3129 | A4 |
| 3130 | A4 |
| 3131 | A4 |
| 3132 | A4 |
| 3133 | A4 |
| 3134 | A4 |
| 3135 | A4 |
| 3136 | B7 |
| 3137 | A4 |
| 3138 | A5 |
| 3139 | A5 |
| 3140 | B7 |
| 3141 | A3 |
| 3142 | A4 |
| 3143 | B7 |
| 3144 | A3 |
| 3145 | A4 |
| 3146 | B7 |
| 3147 | A3 |
| 3148 | A4 |
| 3149 | B6 |
| 3150 | A3 |
| 3151 | B4 |
| 3152 | B7 |
| 3153 | A3 |
| 3154 | B4 |
| 3155 | B7 |
| 3156 | C3 |
| 3158 | B4 |
| 3159 | C2 |
| 3160 | B4 |
| 3161 | C2 |
| 3162 | B4 |
| 3163 | C2 |
| 3164 | B4 |
| 3165 | C2 |
| 3166 | B4 |
| 3167 | C2 |
| 3168 | B4 |
| 3169 | B4 |
| 3170 | B4 |
| 3171 | B4 |
| 3172 | B4 |
| 3173 | A3 |
| 3174 | B4 |
| 3175 | C2 |
| 3176 | A3 |
| 3177 | B3 |
| 3178 | A3 |
| 3179 | B4 |
| 3180 | A2 |
| 3181 | A3 |
| 3182 | B6 |
| 3183 | B6 |
| 3184 | B6 |
| 3185 | C4 |
| 3186 | A3 |
| 3187 | A2 |
| 3188 | B2 |
| 3189 | B2 |
| 3190 | B3 |
| 3191 | B3 |
| 3192 | B3 |
| 3193 | B3 |
| 3194 | B3 |
| 3195 | B3 |
| 3196 | B3 |
| 3197 | B3 |
| 3198 | B3 |
| 3199 | B3 |
| 3200 | A2 |
| 3201 | A3 |
| 3202 | A3 |
| 3203 | B3 |
| 3204 | B3 |
| 3205 | B3 |
| 3206 | B3 |
| 3207 | B3 |
| 3208 | B3 |
| 3209 | B3 |
| 3210 | B3 |
| 3211 | B3 |
| 3212 | B3 |
| 3213 | B3 |
| 3214 | C4 |
| 3215 | C4 |
| 3216 | C4 |
| 3217 | C3 |
| 3218 | C4 |
| 3219 | C4 |
| 3220 | B6 |
| 3221 | B1 |
| 3222 | C1 |
| 3223 | C1 |
| 3224 | C3 |
| 3225 | A2 |
| 3226 | A2 |
| 3227 | C1 |
| 3228 | B1 |
| 3230 | B1 |
| 3231 | A2 |
| 3232 | C1 |
| 3233 | B7 |
| 3236 | C2 |
| 3237 | C4 |
| 3238 | C4 |
| 3243 | C6 |
| 3244 | C6 |
| 3245 | C6 |
| 3246 | C6 |
| 3247 | C6 |
| 3248 | B5 |
| 3249 | C5 |
| 3250 | C1 |
| 3251 | C1 |
| 3253 | C5 |
| 3254 | C5 |
| 3255 | C5 |
| 3256 | C5 |
| 3257 | A7 |
| 3258 | A7 |
| 3259 | A7 |
| 3260 | B7 |
| 3261 | B7 |
| 3262 | D7 |
| 3264 | A1 |
| 3265 | A1 |
| 3267 | B1 |
| 3268 | A1 |
| 3269 | A1 |
| 3270 | A1 |
| 3271 | A1 |
| 3272 | D1 |
| 3273 | D1 |
| 3275 | A2 |
| 3276 | B1 |
| 3277 | A1 |
| 3278 | B1 |
| 3279 | A2 |
| 3280 | A2 |
| 3282 | A2 |
| 3283 | A2 |
| 3284 | A2 |
| 3285 | A2 |
| 3286 | A1 |
| 3287 | A1 |
| 3288 | A1 |
| 3289 | A1 |
| 3290 | D1 |
| 3291 | A1 |
| 3292 | A1 |
| 3293 | C5 |
| 3294 | C5 |
| 4001 | A7 |
| 4002 | A5 |
| 4004 | A5 |
| 4005 | A5 |
| 4006 | A5 |
| 4007 | A5 |
| 4008 | A5 |
| 4009 | A5 |
| 4012 | A2 |
| 4013 | A2 |
| 4014 | A2 |
| 4015 | A1 |
| 4016 | A2 |
| 4017 | B5 |
| 4018 | C5 |
| 4019 | C5 |
| 4021 | C4 |
| 4022 | C4 |
| 4024 | B3 |
| 4025 | C4 |
| 4026 | C3 |
| 4027 | C3 |
| 4028 | C3 |
| 4029 | C3 |
| 4030 | C3 |
| 4031 | C2 |
| 4032 | C2 |
| 4033 | C1 |
| 4034 | C1 |
| 4035 | C1 |
| 4036 | C3 |
| 4037 | D1 |
| 4038 | C1 |
| 4039 | C1 |
| 4040 | D1 |
| 4041 | D1 |
| 4042 | D1 |
| 4043 | D1 |
| 4044 | B1 |
| 4045 | B1 |
| 4046 | B1 |
| 4047 | B1 |
| 4048 | B1 |
| 4049 | B1 |
| 4050 | B1 |
| 4051 | B6 |
| 4052 | C4 |
| 4053 | C3 |
| 4054 | B1 |
| 4055 | B1 |
| 4056 | A1 |
| 4057 | B5 |
| 4058 | A1 |
| 4059 | A1 |
| 4060 | A1 |
| 4061 | A1 |
| 6200 | A4 |
| 6201 | A4 |
| 6202 | A4 |
| 6203 | A4 |
| 6205 | A4 |
| 6206 | A4 |
| 6207 | A4 |
| 6208 | A4 |
| 6209 | A3 |
| 6210 | A3 |
| 6211 | A3 |
| 7101 | A3 |
| 7102 | A5 |
| 7103 | A5 |
| 7104 | A4 |
| 7105 | A5 |
| 7106 | A5 |
| 7107 | B6 |
| 7108 | A3 |
| 7110 | C1 |
| 7111 | A2 |
| 7120 | C1 |
| 7121 | C6 |
| 7122 | A1 |
| 7123 | C5 |

# Front Board Copperside view



This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

CDR-Mini Front Board Copperside view stage .5 (2001-01-12)

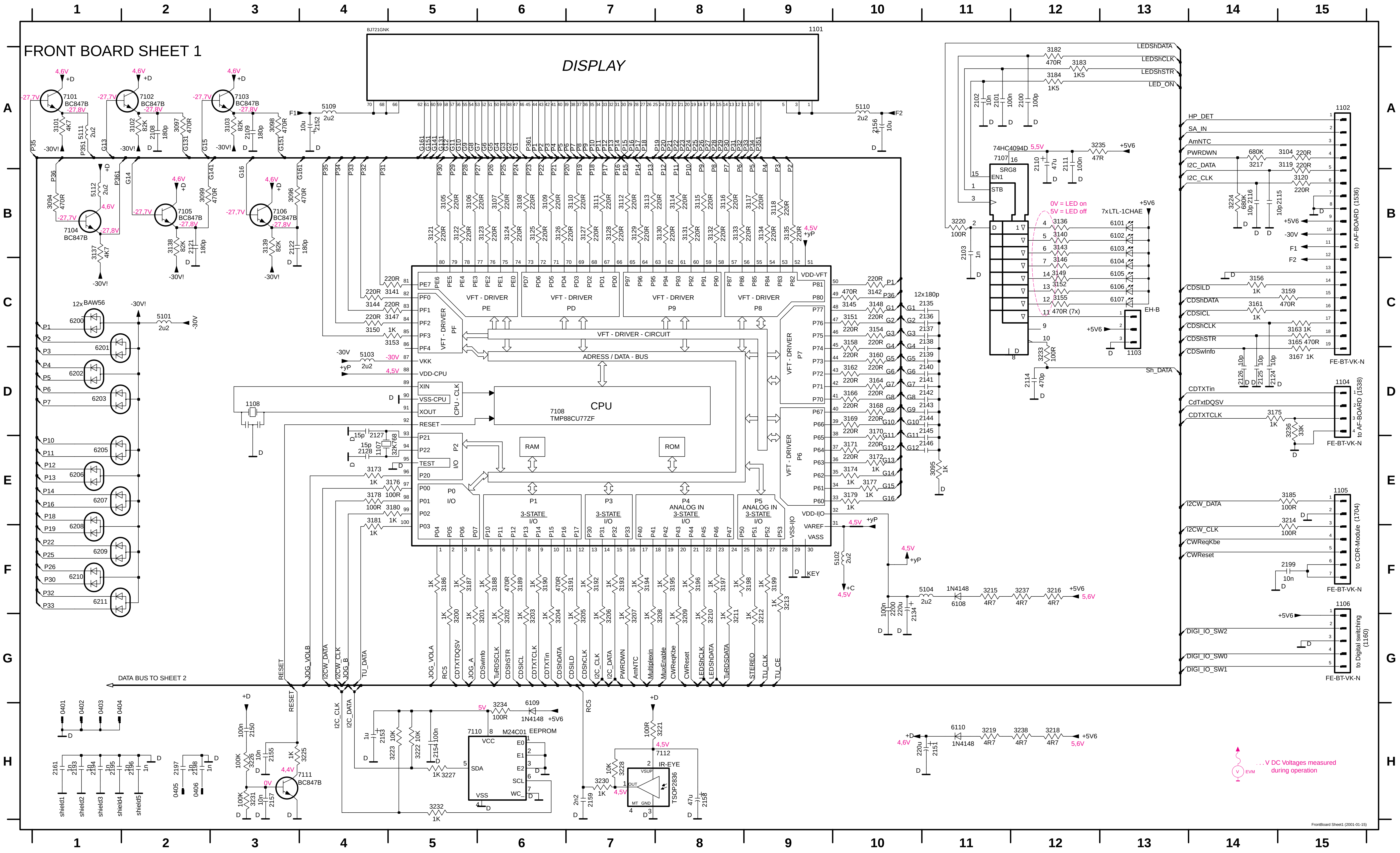
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0401 | G1 | 1105 | E15 | 2110 | A12 | 2127 | E4 | 2142 | D11 |
| 0402 | G1 | 1106 | F15 | 2111 | A12 | 2128 | E4 | 2143 | D11 |
| 0403 | G1 | 1107 | E4 | 2114 | D12 | 2134 | G10 | 2144 | D11 |
| 0404 | G2 | 1108 | D3 | 2115 | B14 | 2135 | C11 | 2145 | D11 |
| 0405 | H2 | 2100 | A12 | 2116 | B14 | 2136 | C11 | 2146 | E11 |
| 0406 | H2 | 2101 | A11 | 2121 | B2 | 2137 | C11 | 2150 | H3 |
| 1101 | A9 | 2102 | A11 | 2122 | B3 | 2138 | C11 | 2151 | H11 |
| 1102 | A15 | 2103 | B11 | 2124 | D14 | 2139 | D11 | 2152 | A4 |
| 1103 | D13 | 2108 | A2 | 2125 | D14 | 2140 | D11 | 2153 | H4 |
| 1104 | D15 | 2109 | A3 | 2126 | D14 | 2141 | D11 | 2154 | H5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2155 | H3 | 2197 | H2 | 3101 | A1 | 3111 | B7 | 3121 | B5 |
| 2156 | A10 | 2198 | H2 | 3102 | A2 | 3112 | B7 | 3122 | B5 |
| 2157 | H3 | 2199 | F15 | 3103 | A3 | 3113 | B7 | 3123 | B6 |
| 2158 | H8 | 2200 | F10 | 3104 | A15 | 3114 | B8 | 3124 | B6 |
| 2159 | H7 | 3094 | B1 | 3105 | B5 | 3115 | B8 | 3125 | B6 |
| 2161 | H1 | 3095 | E11 | 3106 | B5 | 3116 | B8 | 3126 | B6 |
| 2193 | H1 | 3096 | B3 | 3107 | B6 | 3117 | B9 | 3127 | B7 |
| 2194 | H1 | 3097 | A2 | 3108 | B6 | 3118 | B9 | 3128 | B7 |
| 2195 | H1 | 3098 | A3 | 3109 | B6 | 3119 | A15 | 3129 | B7 |
| 2196 | H2 | 3099 | B2 | 3110 | B7 | 3120 | B15 | 3130 | B8 |

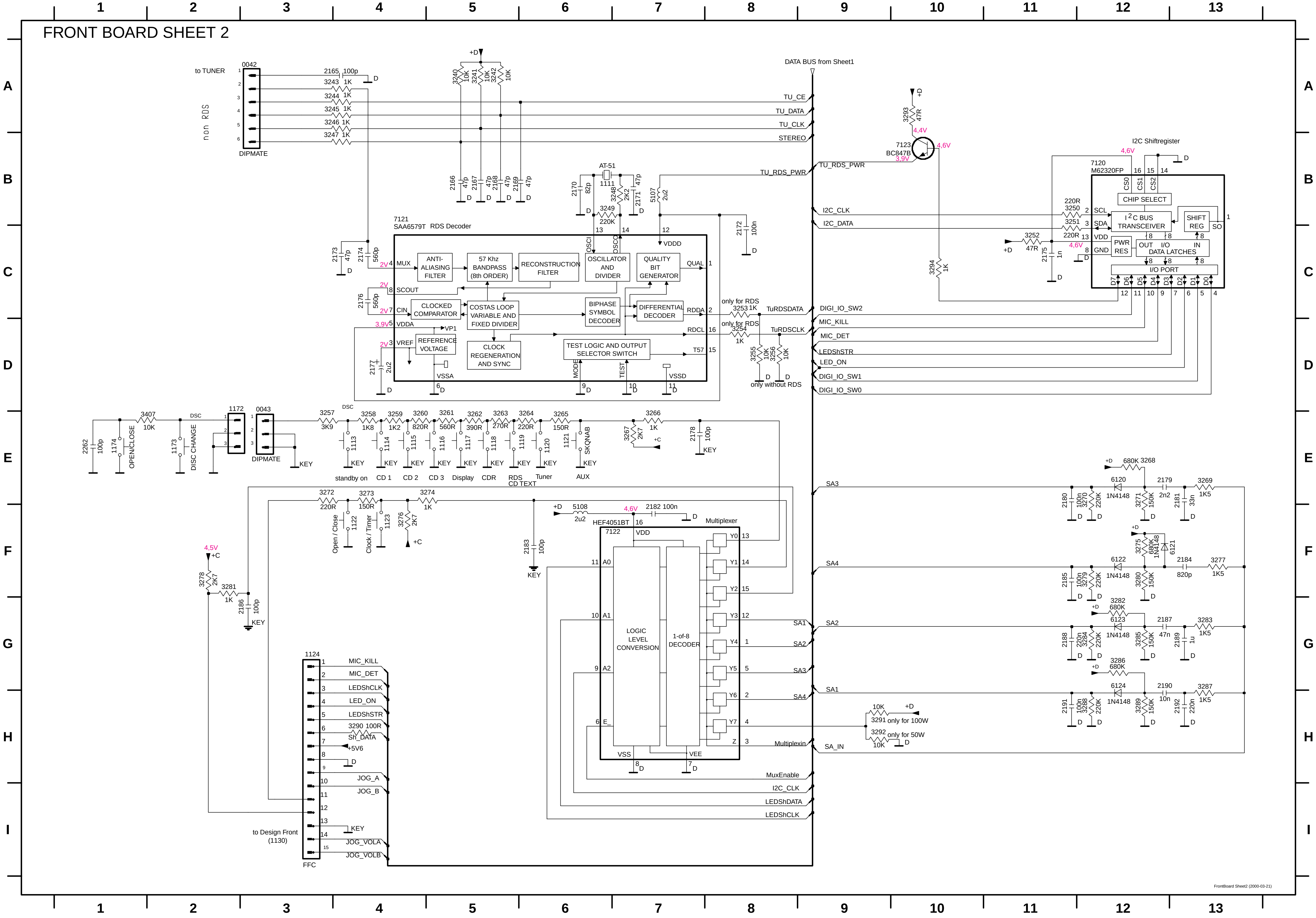
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3131 | B8 | 3141 | C5 | 3151 | C10 | 3162 | D10 | 3172 | E10 |
| 3132 | B8 | 3142 | C10 | 3152 | C12 | 3163 | C15 | 3173 | E4 |
| 3133 | B8 | 3143 | B12 | 3153 | C5 | 3164 | D10 | 3174 | E10 |
| 3134 | B9 | 3144 | C4 | 3154 | C10 | 3165 | C15 | 3175 | D14 |
| 3135 | B9 | 3145 | C10 | 3155 | C12 | 3166 | D10 | 3176 | E5 |
| 3136 | B12 | 3146 | C12 | 3156 | C14 | 3167 | D15 | 3177 | E10 |
| 3137 | B1 | 3147 | C5 | 3158 | C10 | 3168 | D10 | 3178 | E4 |
| 3138 | B2 | 3148 | C10 | 3159 | C15 | 3169 | D10 | 3179 | E10 |
| 3139 | B3 | 3149 | C12 | 3160 | D10 | 3170 | D10 | 3180 | E5 |
| 3140 | B12 | 3150 | C4 | 3161 | C14 | 3171 | E10 | 3181 | E4 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3182 | A12 | 3192 | F7 | 3202 | G6 | 3212 | G9 | 3222 | H5 |
| 3183 | A12 | 3193 | F7 | 3203 | G6 | 3213 | F9 | 3223 | H5 |
| 3184 | A12 | 3194 | F7 | 3204 | G6 | 3214 | E15 | 3224 | B14 |
| 3185 | E15 | 3195 | F8 | 3205 | G7 | 3215 | F11 | 3225 | H4 |
| 3186 | F5 | 3196 | F8 | 3206 | G7 | 3216 | F12 | 3226 | H3 |
| 3187 | F5 | 3197 | F8 | 3207 | G7 | 3217 | A14 | 3227 | H5 |
| 3188 | F6 | 3198 | F9 | 3208 | G8 | 3218 | H12 | 3228 | H7 |
| 3189 | F6 | 3199 | F9 | 3209 | G8 | 3219 | H11 | 3230 | H7 |
| 3190 | F6 | 3200 | G5 | 3210 | G8 | 3220 | B11 | 3231 | H3 |
| 3191 | F7 | 3201 | G6 | 3211 | G8 | 3221 | H8 | 3232 | H5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3233 | D12 | 5109 | A4 | 6107 | C13 | 6207 | E1 | 7106 | B3 |
| 3234 | H6 | 5110 | A10 | 6108 | F11 | 6208 | E1 | 7107 | A11 |
| 3235 | A12 | 5111 | A1 | 6109 | H6 | 6209 | F1 | 7108 | D6 |
| 3236 | D15 | 5112 | B1 | 6110 | H11 | 6210 | F1 | 7110 | H6 |
| 3237 | F12 | 6101 | B13 | 6200 | C1 | 6211 | F1 | 7111 | H3 |
| 3238 | H12 | 6102 | B13 | 6201 | C1 | 7101 | A1 | 7112 | H8 |
| 5101 | C2 | 6103 | B13 | 6202 | D1 | 7102 | A2 | | |
| 5102 | F10 | 6104 | C13 | 6203 | D1 | 7103 | A3 | | |
| 5103 | D4 | 6105 | C13 | 6205 | E1 | 7104 | B1 | | |
| 5104 | F11 | 6106 | C13 | 6206 | E1 | 7105 | B2 | | |


FRONT BOARD SHEET 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H
BJ721GNK
1101
DISPLAY
F1
F2
5109 2u2
5110 2u2
7101 BC847B
7102 BC847B
7103 BC847B
7104 BC847B
7105 BC847B
7106 BC847B
4.6V
-27.7V
-27.8V
-30V!
+D
12x BAW56
5101 2u2
-30V
VFT - DRIVER PE
VFT - DRIVER PD
VFT - DRIVER P9
VFT - DRIVER P8
VFT - DRIVER PF
VFT - DRIVER P7
VFT - DRIVER P6
VFT - DRIVER - CIRCUIT
ADRESS / DATA - BUS
CPU
7108
TMP88CU77ZF
CPU - CLK
RAM
ROM
VKK
VDD-CPU
XIN
VSS-CPU
XOUT
RESET
TEST
VDD-VFT
VDD-I/O
VAREF
VASS
VSS-I/O
P1 3-STATE I/O
P3 3-STATE I/O
P4 ANALOG IN 3-STATE I/O
P5 ANALOG IN 3-STATE I/O
P0 I/O
P2 I/O
1108
1107 32K768
5103 2u2
5102 2u2
12x180p
74HC4094D
7107
SRG8
STB
EN1
0V = LED on
5V = LED off
7xLTL-1CHAE
6101 6102 6103 6104 6105 6106 6107
470R (7x)
EH-B
1103
LEDShDATA
LEDShCLK
LEDShSTR
LED_ON
Sh_DATA
1102
HP_DET
SA_IN
AmNTC
PWRDWN
I2C_DATA
I2C_CLK
CDSILD
CDShDATA
CDSICL
CDShCLK
CDShSTR
CDSwInfo
FE-BT-VK-N
to AF-BOARD (1536)
1104
CDTXTin
CdTxtDQSV
CDTXTCLK
to AF-BOARD (1538)
1105
I2CW_DATA
I2CW_CLK
CWReqKbe
CWReset
to CDR-Module (1704)
1106
DIGI_IO_SW2
DIGI_IO_SW0
DIGI_IO_SW1
to Digital switching (1160)
+5V6
5104 2u2
1N4148
6108
5,6V
KEY
DATA BUS TO SHEET 2
RESET
JOG_VOLB
I2CW_DATA
I2CW_CLK
JOG_B
TU_DATA
JOG_VOLA
RC5
CDTXTDQSV
JOG_A
CDSwInfo
TuRDSCLK
CDShSTR
CDSICL
CDTXTCLK
CDShDATA
CDSILD
CDShCLK
I2C_CLK
I2C_DATA
PWRDWN
AmNTC
Multiplexin
MaxEnable
CWReqKbe
CWReset
LEDShCLK
LEDShDATA
TuRDSDATA
STEREO
TU_CLK
TU_CE
shield1 shield2 shield3 shield4 shield5
7111 BC847B
7110 M24C01 EEPROM
VCC
SDA
SCL
WC
VSS
6109 1N4148
6110 1N4148
7112 IR-EYE
TSOP2836
VSUP
OUT
GND
. . . V DC Voltages measured during operation
EVM
FrontBoard Sheet1 (2001-01-15)

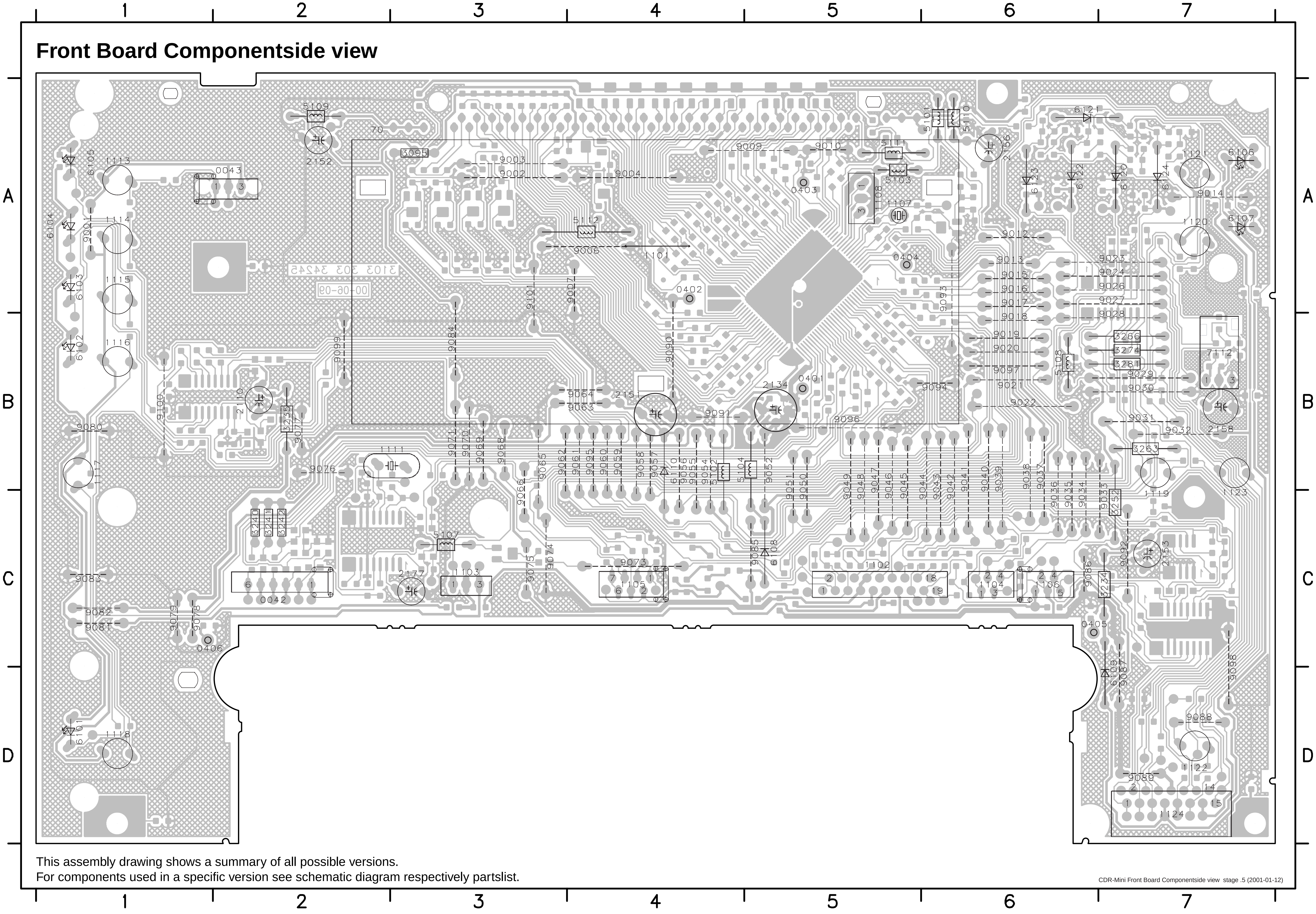
# FRONT BOARD SHEET 2


to TUNER
0042
DIPMATE
non RDS
2165 100p
3243 1K
3244 1K
3245 1K
3246 1K
3247 1K
+D
3240 10K
3241 10K
3242 10K
2166 47p
2167 47p
2168 47p
2169 47p
DATA BUS from Sheet1
TU_CE
TU_DATA
TU_CLK
STEREO
TU_RDS_PWR
3293 47R
7123 BC847B
4,4V
4,6V
3,9V
AT-51
1111
2170 82p
3248 2K2
2171 47p
5107 2u2
3249 220K
2172 100n
7121 SAA6579T RDS Decoder
ANTI-ALIASING FILTER
57 Khz BANDPASS (8th ORDER)
RECONSTRUCTION FILTER
OSCILLATOR AND DIVIDER
QUALITY BIT GENERATOR
CLOCKED COMPARATOR
COSTAS LOOP VARIABLE AND FIXED DIVIDER
BIPHASE SYMBOL DECODER
DIFFERENTIAL DECODER
REFERENCE VOLTAGE
CLOCK REGENERATION AND SYNC
TEST LOGIC AND OUTPUT SELECTOR SWITCH
MUX
SCOUT
CIN
VDDA
VREF
VP1
VSSA
MODE
TEST
VSSD
VDDD
OSCI
OSCO
QUAL
RDDA
RDCL
T57
2173 47p
2174 560p
2176 560p
2177 2u2
only for RDS
3253 1K
3254 1K
TuRDSDATA
TuRDSCLK
3255 10K
3256 10K
only without RDS
I2C_CLK
I2C_DATA
DIGI_IO_SW2
MIC_KILL
MIC_DET
LEDShSTR
LED_ON
DIGI_IO_SW1
DIGI_IO_SW0
3294 1K
I2C Shiftregister
7120 M62320FP
CHIP SELECT
I2C BUS TRANSCEIVER
SHIFT REG
PWR RES
OUT I/O IN DATA LATCHES
I/O PORT
SCL
SDA
VDD
GND
SO
CS0
CS1
CS2
3250 220R
3251 220R
3252 47R
2175 1n
2262 100p
1174 OPEN/CLOSE
3407 10K
1173 DISC CHANGE
DSC
1172
0043
DIPMATE
KEY
3257 3K9
3258 1K8
3259 1K2
3260 820R
3261 560R
3262 390R
3263 270R
3264 220R
3265 150R
3266 1K
3267 2K7
2178 100p
1113
1114
1115
1116
1117
1118
1119
1120
1121
SKQNAB
standby on
CD 1
CD 2
CD 3
Display
CDR
RDS CD TEXT
Tuner
AUX
3272 220R
3273 150R
3274 1K
3276 2K7
1122 Open / Close
1123 Clock / Timer
2183 100p
+C
4,5V
3278 2K7
3281 1K
2186 100p
5108 2u2
2182 100n
HEF4051BT
7122
Multiplexer
VDD
VSS
VEE
LOGIC LEVEL CONVERSION
1-of-8 DECODER
A0
A1
A2
E_
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
Z
SA1
SA2
SA3
SA4
Multiplexin
SA_IN
MuxEnable
I2C_CLK
LEDShDATA
LEDShCLK
1124
MIC_KILL
MIC_DET
LEDShCLK
LED_ON
LEDShSTR
3290 100R
Sh_DATA
+5V6
JOG_A
JOG_B
KEY
JOG_VOLA
JOG_VOLB
to Design Front (1130)
FFC
3291 10K only for 100W
3292 10K only for 50W
680K 3268
6120 1N4148
2179 2n2
3269 1K5
2180 100n
3270 220K
3271 150K
2181 33n
3275 680K
6121 1N4148
6122 1N4148
2184 820p
3277 1K5
2185 100n
3279 220K
3280 150K
3282 680K
6123 1N4148
2187 47n
3283 1K5
2188 220n
3284 220K
3285 150K
2189 1u
3286 680K
6124 1N4148
2190 10n
3287 1K5
2191 100n
3288 220K
3289 150K
2192 220n
FrontBoard Sheet2 (2000-03-21)

| | |
|---|---|
| 0042 | A3 |
| 0043 | E3 |
| 1111 | B6 |
| 1113 | E4 |
| 1114 | E4 |
| 1115 | E4 |
| 1116 | E5 |
| 1117 | E5 |
| 1118 | E5 |
| 1119 | E6 |
| 1120 | E6 |
| 1121 | E6 |
| 1122 | F4 |
| 1123 | F4 |
| 1124 | G3 |
| 2165 | A3 |
| 2166 | B5 |
| 2167 | B5 |
| 2168 | B5 |
| 2169 | B5 |
| 2170 | B6 |
| 2171 | B7 |
| 2172 | C8 |
| 2173 | C4 |
| 2174 | C4 |
| 2175 | C11 |
| 2176 | C4 |
| 2177 | D4 |
| 2178 | E7 |
| 2179 | E12 |
| 2180 | E11 |
| 2181 | E13 |
| 2182 | F7 |
| 2183 | F6 |
| 2184 | F13 |
| 2185 | F11 |
| 2186 | G3 |
| 2187 | G12 |
| 2188 | G11 |
| 2189 | G13 |
| 2190 | G12 |
| 2191 | H11 |
| 2192 | H13 |
| 3240 | A5 |
| 3241 | A5 |
| 3242 | A5 |
| 3243 | A3 |
| 3244 | A3 |
| 3245 | A3 |
| 3246 | A3 |
| 3247 | B3 |
| 3248 | B7 |
| 3249 | B6 |
| 3250 | B11 |
| 3251 | B11 |
| 3252 | C11 |
| 3253 | C8 |
| 3254 | D8 |
| 3255 | D8 |
| 3256 | D8 |
| 3257 | D3 |
| 3258 | E4 |
| 3259 | E4 |
| 3260 | D4 |
| 3261 | D5 |
| 3262 | E5 |
| 3263 | D5 |
| 3264 | D6 |
| 3265 | E6 |
| 3266 | E7 |
| 3267 | E7 |
| 3268 | E12 |
| 3269 | E13 |
| 3270 | E12 |
| 3271 | E12 |
| 3272 | E3 |
| 3273 | E4 |
| 3274 | E5 |
| 3275 | F12 |
| 3276 | F4 |
| 3277 | F13 |
| 3278 | F2 |
| 3279 | F12 |
| 3280 | F12 |
| 3281 | F2 |
| 3282 | G12 |
| 3283 | G13 |
| 3284 | G12 |
| 3285 | G12 |
| 3286 | G12 |
| 3287 | G13 |
| 3288 | H12 |
| 3289 | H12 |
| 3290 | H4 |
| 3291 | H9 |
| 3292 | H9 |
| 3293 | A10 |
| 3294 | C10 |
| 5107 | B7 |
| 5108 | F6 |
| 6120 | E12 |
| 6121 | F13 |
| 6122 | F12 |
| 6123 | G12 |
| 6124 | G12 |
| 7120 | B12 |
| 7121 | B4 |
| 7122 | F6 |
| 7123 | B10 |
| F424 | G10 |
| F425 | G10 |
| F426 | F10 |
| F427 | E10 |
| F478 | A3 |
| F479 | A3 |
| F480 | A3 |
| F481 | A3 |
| F482 | A3 |
| F483 | B3 |
| F484 | C6 |
| F485 | B7 |
| F486 | C7 |
| F487 | D8 |
| F488 | D8 |
| F489 | E3 |
| F490 | E3 |
| F491 | G4 |
| F492 | G4 |
| F493 | G4 |
| F494 | H4 |
| F495 | H4 |
| F496 | H4 |
| F497 | H4 |
| F498 | H4 |
| F499 | H4 |
| F500 | H4 |
| F501 | I3 |
| F502 | I3 |
| F503 | I4 |
| F504 | I4 |
| F505 | I4 |
| F506 | H8 |

| | |
|---|---|
| 0042 | C2 |
| 0043 | A2 |
| 0401 | B5 |
| 0402 | A4 |
| 0403 | A5 |
| 0404 | A5 |
| 0405 | C6 |
| 0406 | C1 |
| 1101 | A4 |
| 1102 | C5 |
| 1103 | C3 |
| 1104 | C6 |
| 1105 | C4 |
| 1106 | C6 |
| 1107 | A5 |
| 1108 | A5 |
| 1111 | B3 |
| 1113 | A1 |
| 1114 | A1 |
| 1115 | A1 |
| 1116 | B1 |
| 1117 | B1 |
| 1118 | D1 |
| 1119 | C7 |
| 1120 | A7 |
| 1121 | A7 |
| 1122 | D7 |
| 1123 | C7 |
| 1124 | D7 |
| 2110 | B2 |
| 2134 | B5 |
| 2151 | B4 |
| 2152 | A2 |
| 2153 | C7 |
| 2156 | A6 |
| 2158 | B7 |
| 2177 | C3 |
| 3095 | A3 |
| 3234 | C7 |
| 3235 | B2 |
| 3240 | C2 |
| 3241 | C2 |
| 3242 | C2 |
| 3252 | C7 |
| 3263 | B7 |
| 3266 | B7 |
| 3274 | B7 |
| 3281 | B7 |
| 5101 | A6 |
| 5102 | B4 |
| 5103 | A5 |
| 5104 | B4 |
| 5107 | C3 |
| 5108 | B6 |
| 5109 | A2 |
| 5110 | A6 |
| 5111 | A5 |
| 5112 | A4 |
| 6101 | D1 |
| 6102 | B1 |
| 6103 | A1 |
| 6104 | A1 |
| 6105 | A1 |
| 6106 | A7 |
| 6107 | A7 |
| 6108 | C5 |
| 6109 | D7 |
| 6110 | B4 |
| 6120 | A7 |
| 6121 | A6 |
| 6122 | A6 |
| 6123 | A6 |
| 6124 | A7 |
| 7112 | B7 |
| 9001 | A1 |
| 9002 | A3 |
| 9003 | A3 |
| 9004 | A4 |
| 9006 | A4 |
| 9007 | A4 |
| 9009 | A5 |
| 9010 | A5 |
| 9012 | A6 |
| 9013 | A6 |
| 9014 | A7 |
| 9015 | A6 |
| 9016 | A6 |
| 9017 | A6 |
| 9018 | B6 |
| 9019 | B6 |
| 9020 | B6 |
| 9021 | B6 |
| 9022 | B6 |
| 9023 | A7 |
| 9024 | A7 |
| 9026 | A7 |
| 9027 | A7 |
| 9028 | B7 |
| 9029 | B7 |
| 9030 | B7 |
| 9031 | B7 |
| 9032 | B7 |
| 9033 | C7 |
| 9034 | C6 |
| 9035 | C6 |
| 9036 | C6 |
| 9037 | B6 |
| 9038 | B6 |
| 9039 | B6 |
| 9040 | B6 |
| 9041 | B6 |
| 9042 | B6 |
| 9043 | B6 |
| 9044 | B6 |
| 9045 | B5 |
| 9046 | B5 |
| 9047 | B5 |
| 9048 | B5 |
| 9049 | B5 |
| 9050 | B5 |
| 9051 | B5 |
| 9052 | B5 |
| 9054 | B4 |
| 9055 | B4 |
| 9056 | B4 |
| 9057 | B4 |
| 9058 | B4 |
| 9059 | B4 |
| 9060 | B4 |
| 9061 | B4 |
| 9062 | B3 |
| 9063 | B4 |
| 9064 | B4 |
| 9065 | B3 |
| 9066 | C3 |
| 9068 | B3 |
| 9069 | B3 |
| 9070 | B3 |
| 9071 | B3 |
| 9073 | C4 |
| 9074 | C3 |
| 9075 | C3 |
| 9076 | B2 |
| 9077 | B2 |
| 9078 | C1 |
| 9079 | C1 |
| 9080 | B1 |
| 9081 | C1 |
| 9082 | C1 |
| 9083 | C1 |
| 9084 | B3 |
| 9085 | C5 |
| 9086 | C6 |
| 9087 | D7 |
| 9088 | D7 |
| 9089 | D7 |
| 9090 | B4 |
| 9091 | B4 |
| 9092 | C7 |
| 9093 | A6 |
| 9094 | B6 |
| 9095 | B4 |
| 9096 | B5 |
| 9097 | B6 |
| 9098 | D7 |
| 9099 | B2 |
| 9100 | B1 |
| 9101 | A3 |

## Front Board Componentside view


1
2
3
4
5
6
7
A
B
C
D
5109
2152
70
3095
0043
1 3
6105
1113
6104
9001
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6103
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6102
1116
9003
9002
9004
5112
9006
1101
3103 303 34245
00-06-09
9009
9010
5111
5103
5101
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1121
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5108
7112
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9007
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2151
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2134
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2158
3263
9100
2110
3235
9077
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1111
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9033
3252
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1123
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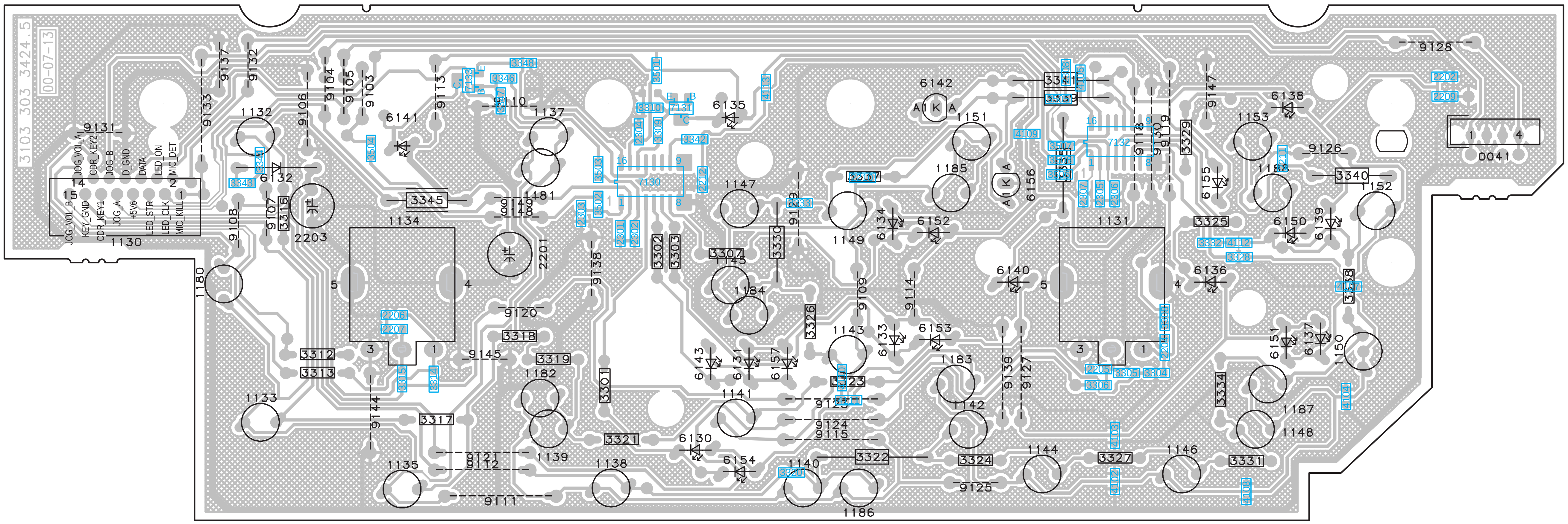
3242
5107
9075
9074
9073
9085
6108
1102
2 18
1 19
1104
2 4
1 3
1106
1 5
9086
3234
9092
2153
9083
6 1
0042
2177
1103
7 1
1105
6 2
9082
9081
9079
9078
0406
0405
6109
9087
9098
9088
1122
9089
2 14
1 15
1124
6101
1118

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

CDR-Mini Front Board Componentside view stage .5 (2001-01-12)

| | |
|---|---|
| 0041 | A10 |
| 1130 | B1 |
| 1131 | B8 |
| 1132 | A2 |
| 1133 | C2 |
| 1134 | B3 |
| 1135 | C3 |
| 1137 | A4 |
| 1138 | C5 |
| 1139 | C4 |
| 1140 | C6 |
| 1141 | C5 |
| 1142 | C7 |
| 1143 | B6 |
| 1144 | C7 |
| 1145 | B5 |
| 1146 | C8 |
| 1147 | A5 |
| 1148 | C9 |
| 1149 | B6 |
| 1150 | B9 |
| 1151 | A7 |
| 1152 | A9 |
| 1153 | A9 |
| 1180 | B2 |
| 1181 | A4 |
| 1182 | C4 |
| 1183 | B7 |
| 1184 | B5 |
| 1185 | A7 |
| 1186 | C6 |
| 1187 | B9 |
| 1188 | A9 |
| 2201 | B4 |
| 2202 | A10 |
| 2203 | B3 |
| 2204 | B8 |
| 2205 | C8 |
| 2206 | B3 |
| 2207 | B3 |
| 2209 | A10 |
| 2210 | A6 |
| 2211 | A9 |
| 2212 | A5 |
| 2301 | B5 |
| 2302 | B5 |
| 2303 | B4 |
| 2304 | A5 |
| 2305 | A8 |
| 2306 | A8 |
| 2307 | A7 |
| 2308 | A7 |
| 3301 | C4 |
| 3302 | B5 |
| 3303 | B5 |
| 3304 | C8 |
| 3305 | C8 |
| 3306 | C8 |
| 3307 | B5 |
| 3308 | B8 |
| 3309 | A5 |
| 3310 | A5 |
| 3311 | A5 |
| 3312 | B3 |
| 3313 | C3 |
| 3314 | C3 |
| 3315 | C3 |
| 3316 | B2 |
| 3317 | C3 |
| 3318 | B4 |
| 3319 | B4 |
| 3320 | C6 |
| 3321 | C5 |
| 3322 | C6 |
| 3323 | C6 |
| 3324 | C7 |
| 3325 | B8 |
| 3326 | B6 |
| 3327 | C8 |
| 3328 | B8 |
| 3329 | A8 |
| 3330 | B6 |
| 3331 | C9 |
| 3332 | B8 |
| 3333 | A6 |
| 3334 | C8 |
| 3335 | A7 |
| 3337 | A6 |
| 3338 | B9 |
| 3339 | A7 |
| 3340 | A9 |
| 3341 | A7 |
| 3342 | A5 |
| 3343 | A2 |
| 3344 | A2 |
| 3345 | A3 |
| 3346 | A4 |
| 3347 | A4 |
| 3348 | A4 |
| 3501 | A5 |
| 3502 | B4 |
| 3503 | A4 |
| 3504 | A3 |
| 3505 | A7 |
| 3506 | A7 |
| 3507 | A7 |
| 3508 | A7 |
| 4102 | C8 |
| 4103 | C8 |
| 4104 | C9 |
| 4105 | A7 |
| 4107 | B9 |
| 4108 | C9 |
| 4109 | A7 |
| 4110 | C6 |
| 4111 | C6 |
| 4112 | B8 |
| 4113 | A5 |
| 6130 | C5 |
| 6131 | C5 |
| 6132 | A2 |
| 6133 | B6 |
| 6134 | B6 |
| 6135 | A5 |
| 6136 | B8 |
| 6137 | B9 |
| 6138 | A9 |
| 6139 | B9 |
| 6140 | B7 |
| 6141 | A3 |
| 6142 | A7 |
| 6143 | C5 |
| 6150 | B9 |
| 6151 | B9 |
| 6152 | B7 |
| 6153 | B7 |
| 6154 | C5 |
| 6155 | A8 |
| 6156 | A7 |
| 6157 | C6 |
| 7130 | A5 |
| 7131 | A5 |
| 7132 | A8 |
| 7133 | A4 |
| 9103 | A3 |
| 9104 | A3 |
| 9105 | A3 |
| 9106 | A3 |
| 9107 | B2 |
| 9108 | B2 |
| 9109 | B6 |
| 9110 | A4 |
| 9111 | C4 |
| 9112 | C4 |
| 9113 | A3 |
| 9114 | B6 |
| 9115 | C6 |
| 9118 | A8 |
| 9119 | A8 |
| 9120 | B4 |
| 9121 | C4 |
| 9123 | C6 |
| 9124 | C6 |
| 9125 | C7 |
| 9126 | A9 |
| 9127 | C7 |
| 9128 | A10 |
| 9129 | B6 |
| 9130 | A8 |
| 9131 | A1 |
| 9132 | A2 |
| 9133 | A2 |
| 9137 | A2 |
| 9138 | B4 |
| 9139 | C7 |
| 9144 | C3 |
| 9145 | B4 |
| 9147 | A8 |
| 9148 | B4 |
| 9149 | B4 |

## Design Front Copperside view


1
2
3
4
5
6
7
8
9
10
A
B
C
3103 303 3424.5
00-07-13
JOG_VOL_B
KEY_GND
CDR_KEY1
JOG_A
+5V6
LED_CLK
MIC_KILL
JOG_VOL_A
CDR_KEY2
JOG_B
D_GND
DATA
LED_ON
LED_STR
MIC_DET
14
15
2
1
9131
1130
1180
1132
6132
1133
1135
2203
1134
3345
6141
1137
1181
1182
1139
2201
9120
3318
3319
9145
3312
3313
3317
9144
9121
9112
9111
1138
3321
3301
6130
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6153
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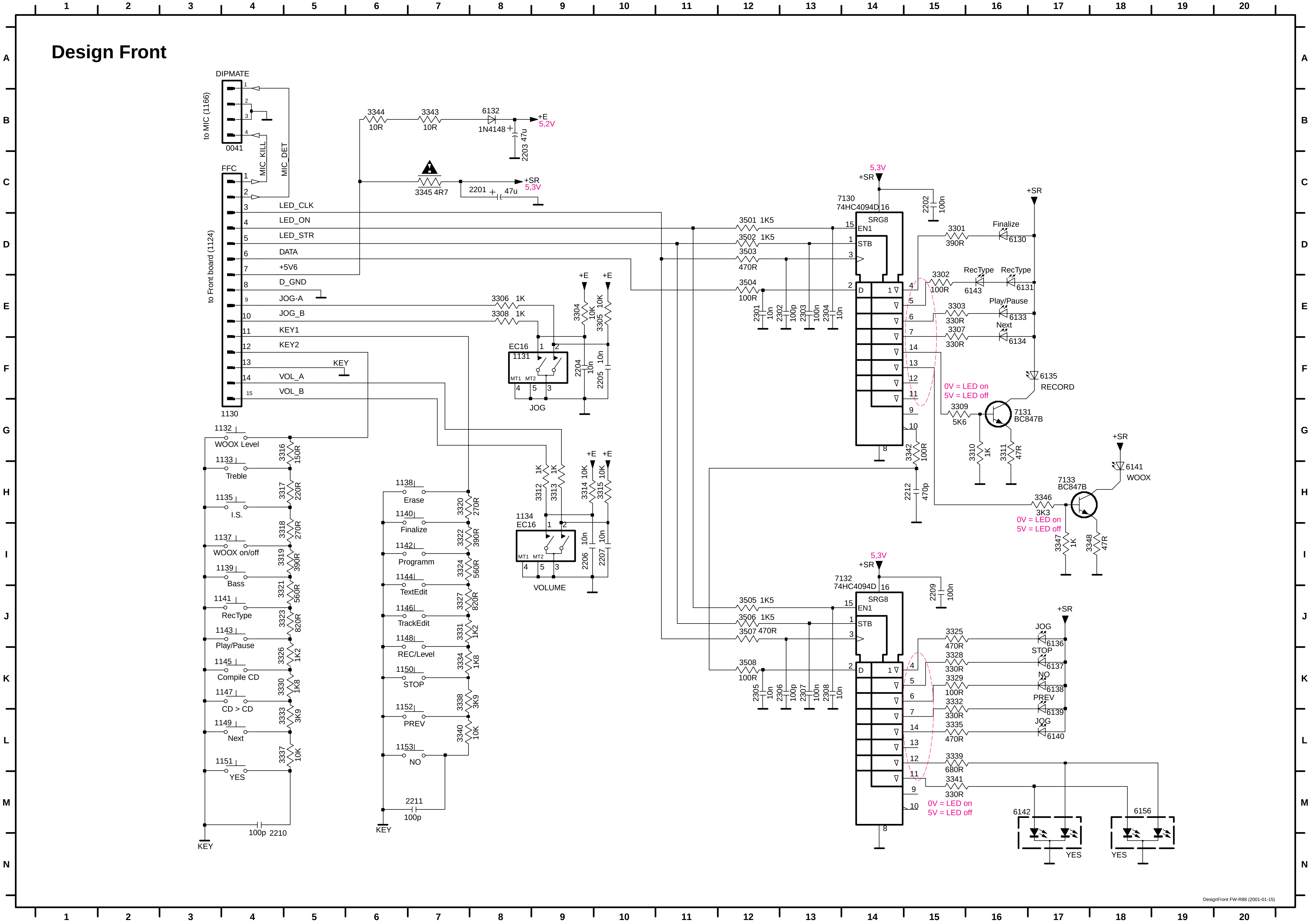
6140
6136
6150
6151
6137
1131
3341
3339
3329
3325
1153
1188
9126
3340
1152
6138
0041
9128
7130
7131
7132

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

CDR-Mini Design-Front Copperside view stage.5 (2000-12-21)

# Design Front


DIPMATE
to MIC (1166)
0041
MIC_KILL
MIC_DET
FFC
to Front board (1124)
1130
LED_CLK
LED_ON
LED_STR
DATA
+5V6
D_GND
JOG-A
JOG_B
KEY1
KEY2
KEY
VOL_A
VOL_B
3344 10R
3343 10R
6132 1N4148
+E 5,2V
2203 47u
3345 4R7
2201 47u
+SR 5,3V
3306 1K
3308 1K
3304 10K
3305 10K
2204 10n
2205 10n
EC16 1131
MT1 MT2
JOG
1134 EC16
VOLUME
3312 1K
3313 1K
3314 10K
3315 10K
2206 10n
2207 10n
1132 WOOX Level
1133 Treble
1135 I.S.
1137 WOOX on/off
1139 Bass
1141 RecType
1143 Play/Pause
1145 Compile CD
1147 CD > CD
1149 Next
1151 YES
3316 150R
3317 220R
3318 270R
3319 390R
3321 560R
3323 820R
3326 1K2
3330 1K8
3333 3K9
3337 10K
100p 2210
1138 Erase
1140 Finalize
1142 Programm
1144 TextEdit
1146 TrackEdit
1148 REC/Level
1150 STOP
1152 PREV
1153 NO
3320 270R
3322 390R
3324 560R
3327 820R
3331 1K2
3334 1K8
3338 3K9
3340 10K
2211 100p
7130 74HC4094D
SRG8
EN1
STB
D
3501 1K5
3502 1K5
3503 470R
3504 100R
2301 10n
2302 100p
2303 100n
2304 10n
2202 100n
3301 390R
Finalize 6130
3302 100R
RecType 6143
RecType 6131
3303 330R
Play/Pause 6133
3307 330R
Next 6134
6135 RECORD
0V = LED on
5V = LED off
3309 5K6
7131 BC847B
3310 1K
3311 47R
3342 100R
2212 470p
6141 WOOX
7133 BC847B
3346 3K3
3347 1K
3348 47R
7132 74HC4094D
3505 1K5
3506 1K5
3507 470R
3508 100R
2305 10n
2306 100p
2307 100n
2308 10n
2209 100n
3325 470R
JOG 6136
3328 330R
STOP 6137
3329 100R
NO 6138
3332 330R
PREV 6139
3335 470R
JOG 6140
3339 680R
3341 330R
6142 YES
6156 YES
DesignFront FW-R88 (2001-01-15)

|  |  |
|---|---|
| 0041 | B4 |
| 1130 | G4 |
| 1131 | F8 |
| 1132 | G4 |
| 1133 | H4 |
| 1134 | H8 |
| 1135 | H4 |
| 1137 | I4 |
| 1138 | H7 |
| 1139 | I4 |
| 1140 | H7 |
| 1141 | J4 |
| 1142 | I7 |
| 1143 | J4 |
| 1144 | I7 |
| 1145 | K4 |
| 1146 | J7 |
| 1147 | K4 |
| 1148 | J7 |
| 1149 | L4 |
| 1150 | K7 |
| 1151 | L4 |
| 1152 | L6 |
| 1153 | L7 |
| 1180 | G3 |
| 1181 | I3 |
| 1182 | J3 |
| 1183 | K3 |
| 1184 | K3 |
| 1185 | L3 |
| 1186 | I6 |
| 1187 | K6 |
| 1188 | L6 |
| 2201 | C8 |
| 2202 | C15 |
| 2203 | C8 |
| 2204 | F9 |
| 2205 | F10 |
| 2206 | I9 |
| 2207 | I10 |
| 2209 | J15 |
| 2210 | M4 |
| 2211 | M7 |
| 2212 | H15 |
| 2301 | E12 |
| 2302 | E13 |
| 2303 | E13 |
| 2304 | E13 |
| 2305 | K12 |
| 2306 | K13 |
| 2307 | K13 |
| 2308 | K13 |
| 3301 | D15 |
| 3302 | E15 |
| 3303 | E15 |
| 3304 | E9 |
| 3305 | E10 |
| 3306 | E8 |
| 3307 | E15 |
| 3308 | E8 |
| 3309 | G15 |
| 3310 | G16 |
| 3311 | G16 |
| 3312 | H9 |
| 3313 | H9 |
| 3314 | H9 |
| 3315 | H10 |
| 3316 | G5 |
| 3317 | H5 |
| 3318 | I5 |
| 3319 | I4 |
| 3320 | H7 |
| 3321 | J4 |
| 3322 | I7 |
| 3323 | J5 |
| 3324 | I7 |
| 3325 | J15 |
| 3326 | K4 |
| 3327 | J7 |
| 3328 | K15 |
| 3329 | K15 |
| 3330 | K4 |
| 3331 | J7 |
| 3332 | K15 |
| 3333 | L5 |
| 3334 | K7 |
| 3335 | L15 |
| 3337 | L5 |
| 3338 | K7 |
| 3339 | L15 |
| 3340 | L7 |
| 3341 | M15 |
| 3342 | G15 |
| 3343 | B7 |
| 3344 | B6 |
| 3345 | C7 |
| 3501 | D12 |
| 3502 | D12 |
| 3503 | D12 |
| 3504 | E12 |
| 3505 | J12 |
| 3506 | J12 |
| 3507 | J12 |
| 3508 | K12 |
| 6130 | D16 |
| 6131 | E16 |
| 6132 | B8 |
| 6133 | E16 |
| 6134 | F16 |
| 6135 | F17 |
| 6136 | J17 |
| 6137 | K17 |
| 6138 | K17 |
| 6139 | L17 |
| 6140 | L17 |
| 6142 | M16 |
| 6143 | E16 |
| 6150 | L18 |
| 6151 | K18 |
| 6152 | F17 |
| 6153 | E17 |
| 6154 | D17 |
| 6155 | K18 |
| 6156 | M18 |
| 6157 | E17 |
| 7130 | C13 |
| 7131 | F16 |
| 7132 | I13 |
| F400 | C4 |
| F401 | D4 |
| F402 | D4 |
| F403 | D4 |
| F404 | D4 |
| F405 | E4 |
| F406 | E4 |
| F407 | E4 |
| F408 | E4 |
| F409 | F4 |
| F410 | F4 |
| F411 | F4 |
| F412 | F4 |
| F413 | C4 |
| F414 | A4 |
| F415 | B4 |
| F416 | B4 |
| F417 | C4 |
| F418 | L15 |
| F419 | L16 |
| F420 | M15 |
| F421 | M16 |
| F550 | D16 |
| F551 | D15 |
| F552 | E16 |
| F553 | E16 |
| F554 | G16 |
| F555 | J16 |
| F556 | K16 |
| F557 | K16 |
| F558 | K16 |
| F559 | L16 |

## *ELECTRICAL PARTSLIST FRONT BOARD*

MISCELLANEOUS

| | | |
|---|---|---|
| 1101 | 3103 308 52930 | DISPLAY, BJ721GNK |

**Note for replacing display:**
In order to obtain the correct display color, filter foil pos. 213 has to be removed from the old display and mounted onto the new one. The filter foil is also available separately with 3103 304 68990.

| | | |
|---|---|---|
| 1102 | 4822 265 11553 | FLEX FOIL CONNECTOR 19P |
| 1104 | 4822 267 10733 | FFC SOCKET, 4P |
| 1105 | 4822 267 10953 | FLEX FOIL CONNECTOR 7P |
| 1106 | 4822 267 10954 | FFC SOCKET, 5P |
| 1113 | 4822 276 13775 | TACT SWITCH |
| 1114 | 4822 276 13775 | TACT SWITCH |
| 1115 | 4822 276 13775 | TACT SWITCH |
| 1116 | 4822 276 13775 | TACT SWITCH |
| 1117 | 4822 276 13775 | TACT SWITCH |
| 1118 | 4822 276 13775 | TACT SWITCH |
| 1119 | 4822 276 13775 | TACT SWITCH |
| 1120 | 4822 276 13775 | TACT SWITCH |
| 1121 | 4822 276 13775 | TACT SWITCH |
| 1122 | 4822 276 13775 | TACT SWITCH |
| 1123 | 4822 276 13775 | TACT SWITCH |
| 1124 | 4822 265 10979 | FLEX FOIL CONNECTOR 15P |
| 1130 | 4822 265 10979 | FLEX FOIL CONNECTOR 15P |
| 1131 | 2422 129 16376 | ROTARY ENCODER JOG |
| 1132 | 4822 276 13775 | TACT SWITCH |
| 1133 | 4822 276 13775 | TACT SWITCH |
| 1134 | 2422 129 16348 | ROTARY ENCODER VOLUME |
| 1135 | 4822 276 13775 | TACT SWITCH |
| 1137 | 4822 276 13775 | TACT SWITCH |
| 1138 | 4822 276 13775 | TACT SWITCH |
| 1139 | 4822 276 13775 | TACT SWITCH |
| 1140 | 4822 276 13775 | TACT SWITCH |
| 1141 | 4822 276 13775 | TACT SWITCH |
| 1142 | 4822 276 13775 | TACT SWITCH |
| 1143 | 4822 276 13775 | TACT SWITCH |
| 1144 | 4822 276 13775 | TACT SWITCH |
| 1145 | 4822 276 13775 | TACT SWITCH |
| 1146 | 4822 276 13775 | TACT SWITCH |
| 1147 | 4822 276 13775 | TACT SWITCH |
| 1148 | 4822 276 13775 | TACT SWITCH |
| 1149 | 4822 276 13775 | TACT SWITCH |
| 1150 | 4822 276 13775 | TACT SWITCH |
| 1151 | 4822 276 13775 | TACT SWITCH |
| 1152 | 4822 276 13775 | TACT SWITCH |
| 1153 | 4822 276 13775 | TACT SWITCH |
| 1160 | 4822 267 10958 | FFC-CONNECTOR, 5P, SIDE ENTRY |
| 1161 | 4822 267 31729 | CINCH CONNECTOR, 1 POLE |
| 1165 | 4822 267 40898 | MICROPHONE SOCKET |
| 1173 | 4822 276 13775 | TACT SWITCH |
| 1174 | 4822 276 13775 | TACT SWITCH |

CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2100 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2101 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2102 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2103 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2108 © | 4822 126 10326 | 180pF | 5% | |
| 2109 © | 4822 126 10326 | 180pF | 5% | |
| 2110 | 4822 124 40433 | 47µF | 20% | 25V |
| 2111 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2114 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2115 © | 5322 122 32448 | 10pF | 5% | 50V |
| 2116 © | 5322 122 32448 | 10pF | 5% | 50V |
| 2121 © | 4822 126 10326 | 180pF | 5% | |
| 2122 © | 4822 126 10326 | 180pF | 5% | |

CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2124 © | 5322 122 32448 | 10pF | 5% | 50V |
| 2125 © | 5322 122 32448 | 10pF | 5% | 50V |
| 2126 © | 5322 122 32448 | 10pF | 5% | 50V |
| 2127 © | 4822 126 13486 | 15pF | 2% | 63V |
| 2128 © | 4822 126 13486 | 15pF | 2% | 63V |
| 2134 | 4822 124 12245 | 220µF | 20% | 16V |
| 2135 © | 4822 126 10326 | 180pF | 5% | |
| 2136 © | 4822 126 10326 | 180pF | 5% | |
| 2137 © | 4822 126 10326 | 180pF | 5% | |
| 2138 © | 4822 126 10326 | 180pF | 5% | |
| 2139 © | 4822 126 10326 | 180pF | 5% | |
| 2140 © | 4822 126 10326 | 180pF | 5% | |
| 2141 © | 4822 126 10326 | 180pF | 5% | |
| 2142 © | 4822 126 10326 | 180pF | 5% | |
| 2143 © | 4822 126 10326 | 180pF | 5% | |
| 2144 © | 4822 126 10326 | 180pF | 5% | |
| 2145 © | 4822 126 10326 | 180pF | 5% | |
| 2146 © | 4822 126 10326 | 180pF | 5% | |
| 2150 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2151 | 4822 124 12245 | 220µF | 20% | 16V |
| 2152 | 4822 124 22833 | 10µF | 20% | 50V |
| 2153 | 4822 124 21913 | 1µF | 20% | 63V |
| 2154 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2155 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2156 | 4822 124 22833 | 10µF | 20% | 50V |
| 2157 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2158 | 4822 124 81286 | 47µF | 20% | 16V |
| 2159 © | 4822 122 33127 | 2,2nF | 10% | 63V |
| 2161 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2165 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2166 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2167 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2168 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2169 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2170 © | 4822 126 13695 | 82pF | 1% | 63V |
| 2171 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2172 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2173 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2174 © | 5322 116 80853 | 560pF | 5% | 63V |
| 2175 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2176 © | 4822 122 33173 | 560pF | 10% | 63V |
| 2177 | 4822 124 22652 | 2,2µF | 20% | 50V |
| 2178 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2179 © | 4822 122 33127 | 2,2nF | 10% | 63V |
| 2180 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2181 © | 4822 126 12105 | 33nF | 5% | 63V |
| 2182 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2183 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2184 © | 5322 126 10184 | 820pF | 5% | 50V |
| 2185 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2186 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2187 © | 4822 126 13751 | 47nF | 10% | 50V |
| 2188 © | 4822 126 14076 | 220nF | 20% | 25V |
| 2189 © | 4822 126 14043 | 1µF | 20% | 16V |
| 2190 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2191 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2192 © | 4822 126 14076 | 220nF | 20% | 25V |
| 2193 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2194 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2195 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2196 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2197 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2198 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2199 © | 4822 122 33177 | 10nF | 20% | 50V |

## ***ELECTRICAL PARTSLIST FRONT BOARD***

CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2200 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2201 | 4822 124 81286 | 47µF | 20% | 16V |
| 2202 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2203 | 4822 124 81286 | 47µF | 20% | 16V |
| 2204 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2205 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2206 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2207 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2209 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2210 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2211 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2212 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2220 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2227 © | 4822 126 14043 | 1µF | 20% | 16V |
| 2228 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2230 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2234 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2240 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2241 | 4822 124 80791 | 470µF | 20% | 16V |
| 2242 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2243 | 4822 124 40248 | 10µF | 20% | 63V |
| 2244 | 4822 124 40248 | 10µF | 20% | 63V |
| 2245 © | 4822 126 13482 | 470nF | 20% | 16V |
| 2246 © | 4822 126 13482 | 470nF | 20% | 16V |
| 2247 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2248 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2249 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2250 © | 5322 126 10223 | 4,7nF | 10% | 63V |
| 2251 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2252 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2253 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2254 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2255 | 4822 124 40248 | 10µF | 20% | 63V |
| 2256 | 4822 124 21913 | 1µF | 20% | 63V |
| 2257 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2258 | 4822 124 41584 | 100µF | 20% | 10V |
| 2260 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2262 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2301 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2302 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2303 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2304 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2305 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2306 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2307 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2308 © | 4822 122 33177 | 10nF | 20% | 50V |

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3094 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3095 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3096 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3097 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3098 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3099 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3101 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3102 © | 4822 117 11149 | 82kΩ | 1% | 0,1W |
| 3103 © | 4822 117 11149 | 82kΩ | 1% | 0,1W |
| 3104 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3105 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3106 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3107 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3108 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3109 © | 4822 117 11503 | 220Ω | 5% | 0,1W |

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3110 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3111 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3112 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3113 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3114 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3115 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3116 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3117 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3118 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3119 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3120 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3121 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3122 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3123 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3124 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3125 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3126 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3127 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3128 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3129 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3130 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3131 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3132 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3133 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3134 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3135 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3136 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3137 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3138 © | 4822 117 11149 | 82kΩ | 1% | 0,1W |
| 3139 © | 4822 117 11149 | 82kΩ | 1% | 0,1W |
| 3140 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3141 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3142 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3143 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3144 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3145 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3146 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3147 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3148 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3149 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3150 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3151 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3152 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3153 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3154 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3155 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3156 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3158 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3159 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3160 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3161 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3162 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3163 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3164 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3165 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3166 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3167 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3168 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3169 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3170 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3171 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3172 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3173 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3174 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |

## *ELECTRICAL PARTSLIST FRONT BOARD*

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3175 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3176 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3176 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3177 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3178 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3178 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3179 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3180 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3181 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3182 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3183 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3184 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3185 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3185 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3186 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3187 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3188 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3189 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3190 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3191 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3192 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3193 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3194 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3195 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3196 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3197 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3198 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3199 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3200 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3201 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3202 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3203 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3204 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3205 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3206 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3207 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3208 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3209 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3210 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3211 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3212 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3213 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3214 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3214 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3215 © | 4822 051 20478 | 4,7Ω | 5% | 0,1W |
| 3216 © | 4822 051 20478 | 4,7Ω | 5% | 0,1W |
| 3217 © | 4822 051 20684 | 680kΩ | 5% | 0,1W |
| 3218 © | 4822 051 20478 | 4,7Ω | 5% | 0,1W |
| 3219 © | 4822 051 20478 | 4,7Ω | 5% | 0,1W |
| 3220 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3220 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3221 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3221 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3222 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3223 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3224 © | 4822 051 20684 | 680kΩ | 5% | 0,1W |
| 3225 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3226 © | 4822 117 10837 | 100kΩ | 1% | 0,1W |
| 3227 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3228 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3230 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3231 © | 4822 117 10837 | 100kΩ | 1% | 0,1W |
| 3232 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3233 © | 4822 051 20101 | 100Ω | 5% | 0,1W |

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3233 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3234 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3235 | 4822 116 52195 | 47Ω | 5% | 0,5W |
| 3236 © | 4822 051 20333 | 33kΩ | 5% | 0,1W |
| 3237 © | 4822 051 20478 | 4,7Ω | 5% | 0,1W |
| 3238 © | 4822 051 20478 | 4,7Ω | 5% | 0,1W |
| 3240 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3241 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3242 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3243 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3244 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3245 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3246 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3247 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3248 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3249 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3250 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3251 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3252 | 4822 116 52195 | 47Ω | 5% | 0,5W |
| 3253 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3254 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3255 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3256 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3257 © | 4822 051 20392 | 3,9kΩ | 5% | 0,1W |
| 3258 © | 4822 051 20182 | 1,8kΩ | 5% | 0,1W |
| 3259 © | 4822 051 20122 | 1,2kΩ | 5% | 0,1W |
| 3260 © | 4822 117 11454 | 820Ω | 1% | |
| 3261 © | 4822 051 20561 | 560Ω | 5% | 0,1W |
| 3262 © | 4822 051 20391 | 390Ω | 5% | 0,1W |
| 3263 | 4822 116 83876 | 270Ω | 5% | 0.16W |
| 3264 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3265 © | 4822 117 10353 | 150Ω | 5% | 0,1W |
| 3266 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3267 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3268 © | 4822 051 20684 | 680kΩ | 5% | 0,1W |
| 3269 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3270 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3271 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3272 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3273 © | 4822 117 10353 | 150Ω | 5% | 0,1W |
| 3274 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3275 © | 4822 051 20684 | 680kΩ | 5% | 0,1W |
| 3276 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3277 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3278 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3279 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3280 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3281 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3282 © | 4822 051 20684 | 680kΩ | 5% | 0,1W |
| 3283 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3284 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3285 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3286 © | 4822 051 20684 | 680kΩ | 5% | 0,1W |
| 3287 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3288 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3289 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3290 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3290 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3291 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3292 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3293 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3294 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3301 | 4822 116 83881 | 390Ω | 5% | 0,5W |
| 3302 | 4822 116 52175 | 100Ω | 5% | 0,5W |

## ***ELECTRICAL PARTSLIST FRONT BOARD***

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3303 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3304 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3305 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3306 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3307 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3308 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3309 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3310 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3311 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3312 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3313 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3314 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3315 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3316 | 4822 116 83868 | 150Ω | 5% | 0,5W |
| 3317 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3318 | 4822 116 83876 | 270Ω | 5% | 0.16W |
| 3319 | 4822 116 83881 | 390Ω | 5% | 0,5W |
| 3320 © | 4822 117 11504 | 270Ω | 1% | 0.1W |
| 3321 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3322 | 4822 116 83881 | 390Ω | 5% | 0,5W |
| 3323 | 4822 116 52231 | 820Ω | 5% | 0,5W |
| 3324 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3325 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3326 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3327 | 4822 116 52231 | 820Ω | 5% | 0,5W |
| 3328 © | 4822 117 13577 | 330Ω | 1% | 0,1W |
| 3329 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3330 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |
| 3331 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3332 © | 4822 117 13577 | 330Ω | 1% | 0,1W |
| 3333 © | 4822 051 20392 | 3,9kΩ | 5% | 0,1W |
| 3334 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |
| 3335 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3337 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3338 © | 4822 117 13577 | 330Ω | 1% | 0,1W |
| 3339 | 4822 116 52228 | 680Ω | 5% | 0,5W |
| 3340 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3341 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3342 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3342 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3343 © | 4822 051 20109 | 10Ω | 5% | 0,1W |
| 3344 © | 4822 051 20109 | 10Ω | 5% | 0,1W |
| 3345 | 4822 052 10478 | 4,7Ω | 5% | NFR |
| 3346 © | 4822 051 20332 | 3,3kΩ | 5% | 0,1W |
| 3347 © | 4822 051 20202 | 2K | 5% | 0,1W |
| 3348 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3350 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3351 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3358 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3359 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3364 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3364 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3366 © | 4822 117 10837 | 100kΩ | 1% | 0,1W |
| 3367 © | 4822 051 20829 | 82Ω | 5% | 0,1W |
| 3370 © | 4822 117 11507 | 6,8kΩ | 1% | 0,1W |
| 3371 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3372 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3373 © | 4822 051 20223 | 22kΩ | 5% | 0,1W |
| 3374 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3375 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3376 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3377 © | 4822 051 20105 | 1MΩ | 5% | 0,1W |
| 3378 © | 4822 051 20105 | 1MΩ | 5% | 0,1W |
| 3379 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3380 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3381 © | 4822 051 20229 | 22Ω | 5% | 0,1W |
| 3382 © | 4822 117 11448 | 180Ω | 10% | 0,1W |
| 3383 | 4822 101 21204 | POTMETER, 20kΩ | | |
| 3384 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3385 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3386 © | 4822 051 20339 | 33Ω | 5% | 0,1W |
| 3387 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3388 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3389 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3390 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3391 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3392 © | 4822 051 20105 | 1MΩ | 5% | 0,1W |
| 3393 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3394 © | 4822 117 10834 | 47kΩ | 1% | 0,1W |
| 3395 © | 4822 117 10353 | 150Ω | 5% | 0,1W |
| 3396 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3397 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3401 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3403 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3404 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3407 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3501 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3502 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3503 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3504 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3504 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 3505 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3506 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3507 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3508 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3508 © | 4822 117 11373 | 100R | 1% | 0,1W |
| 4001 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4002 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4004 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4005 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4006 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4007 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4008 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4009 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4012 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4013 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4014 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4015 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4016 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4017 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4018 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4019 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4021 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4022 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4024 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4025 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4026 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4027 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4028 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4029 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4030 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4031 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4032 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4033 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4034 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4035 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4036 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4037 © | 4822 051 20008 | CHIP JUMPER 0805 | | |

## ***ELECTRICAL PARTSLIST FRONT BOARD***

### RESISTORS

| | | |
|---|---|---|
| 4038© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4039© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4040© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4041© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4042© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4043© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4044© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4045© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4046© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4047© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4048© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4049© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4050© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4051© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4052© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4053© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4054© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4055© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4056© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4057© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4058© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4059© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4060© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4061© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4102© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4103© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4104© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4105© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4107© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4108© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4109© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4110© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4111© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4112© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4113© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4201© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4203© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4204© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4205© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4206© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4304© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4401© | 4822 051 20008 | CHIP JUMPER 0805 |
| 4501© | 4822 051 20008 | CHIP JUMPER 0805 |

### COILS

| | | |
|---|---|---|
| 1107 | 4822 242 70938 | CRYSTAL 32,768kHz |
| 1108 | 5322 242 73686 | CERAMIC RESONATOR, 12MHZ |
| 1111 | 4822 242 72195 | XTAL 4,332MHz |
| 5101 | 4822 156 21721 | 2,2µH |
| 5102 | 4822 156 21721 | 2,2µH |
| 5103 | 4822 156 21721 | 2,2µH |
| 5104 | 4822 156 21721 | 2,2µH |
| 5107 | 4822 156 21721 | 2,2µH |
| 5108 | 4822 156 21721 | 2,2µH |
| 5109 | 4822 156 21721 | 2,2µH |
| 5110 | 4822 156 21721 | 2,2µH |
| 5111 | 4822 156 21721 | 2,2µH |
| 5112 | 4822 156 21721 | 2,2µH |

### DIODES

| | | |
|---|---|---|
| 6101 | 4822 130 11589 | LED, LTL-1CHAE |
| 6102 | 4822 130 11589 | LED, LTL-1CHAE |
| 6103 | 4822 130 11589 | LED, LTL-1CHAE |
| 6104 | 4822 130 11589 | LED, LTL-1CHAE |
| 6105 | 9322 131 65675 | LED, LTL-1CHEE |
| 6106 | 4822 130 11589 | LED, LTL-1CHAE |
| 6107 | 4822 130 11589 | LED, LTL-1CHAE |
| 6108 | 4822 130 30621 | 1N4148 |
| 6109 | 4822 130 30621 | 1N4148 |
| 6110 | 4822 130 30621 | 1N4148 |
| 6120 | 4822 130 30621 | 1N4148 |
| 6121 | 4822 130 30621 | 1N4148 |
| 6122 | 4822 130 30621 | 1N4148 |
| 6123 | 4822 130 30621 | 1N4148 |
| 6124 | 4822 130 30621 | 1N4148 |
| 6131 | 4822 130 11589 | LED, LTL-1CHAE |
| 6132 | 4822 130 30621 | 1N4148 |
| 6133 | 4822 130 11589 | LED, LTL-1CHAE |
| 6134 | 4822 130 11589 | LED, LTL-1CHAE |
| 6136 | 8203 303 84850 | LED, LTL2R3KFK-071A |
| 6137 | 4822 130 11589 | LED, LTL-1CHAE |
| 6138 | 4822 130 11589 | LED, LTL-1CHAE |
| 6139 | 4822 130 11589 | LED, LTL-1CHAE |
| 6140 | 8203 303 84850 | LED, LTL2R3KFK-071A |
| 6142 | 8203 303 84450 | LED 5MM AMBER/H.E.RED |
| 6143 | 4822 130 11589 | LED, LTL-1CHAE |
| 6160 | 4822 130 30621 | 1N4148 |
| 6161 | 4822 130 30621 | 1N4148 |
| 6162 | 4822 130 30621 | 1N4148 |
| 6200 | 5322 130 30691 | BAW56 |
| 6201 | 5322 130 30691 | BAW56 |
| 6202 | 5322 130 30691 | BAW56 |
| 6203 | 5322 130 30691 | BAW56 |
| 6205 | 5322 130 30691 | BAW56 |
| 6206 | 5322 130 30691 | BAW56 |
| 6207 | 5322 130 30691 | BAW56 |
| 6208 | 5322 130 30691 | BAW56 |
| 6209 | 5322 130 30691 | BAW56 |
| 6210 | 5322 130 30691 | BAW56 |
| 6211 | 5322 130 30691 | BAW56 |

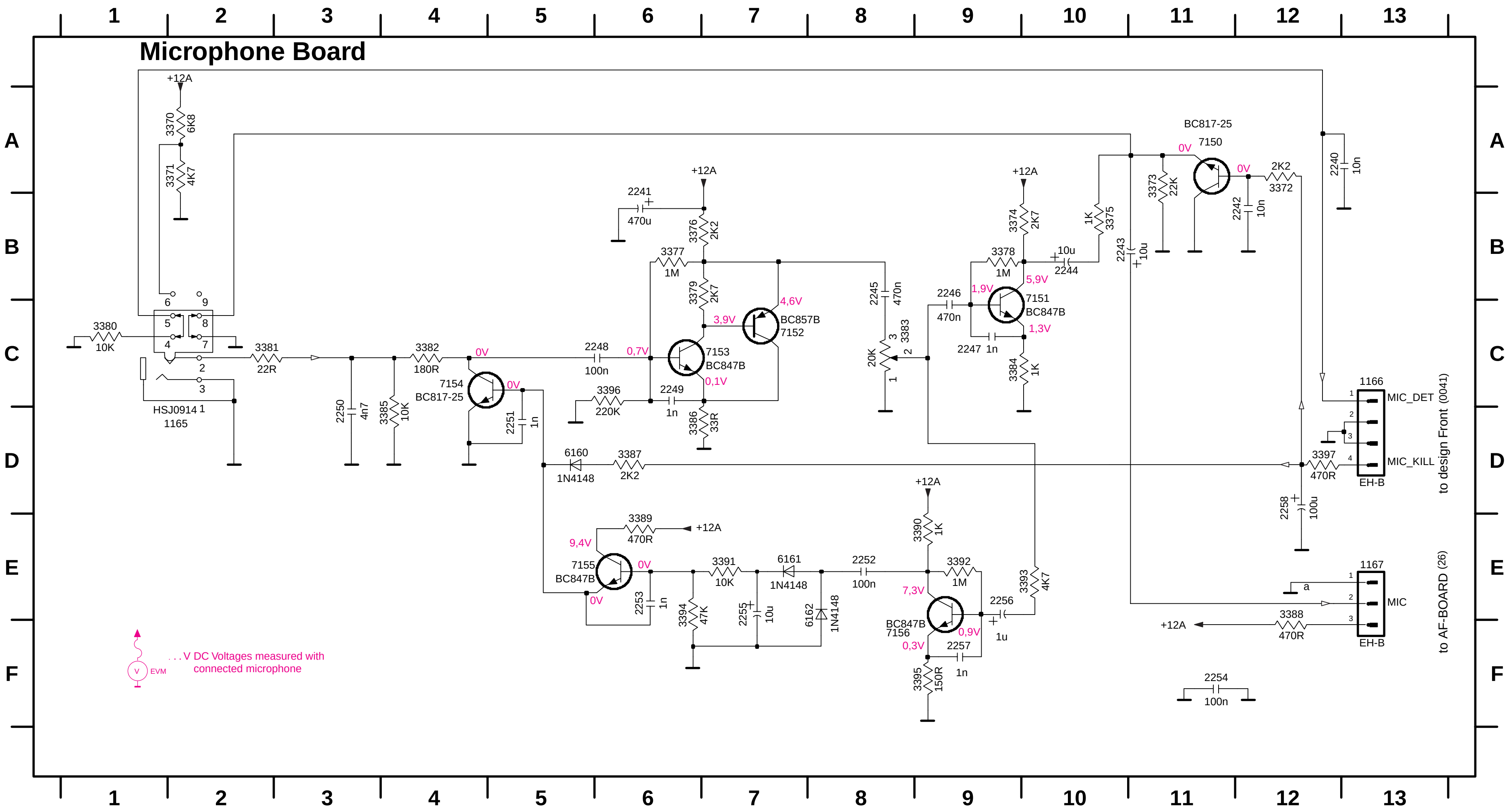
### TRANSISTORS

| | | |
|---|---|---|
| 7101© | 5322 130 60159 | BC846B |
| 7102© | 5322 130 60159 | BC846B |
| 7103© | 5322 130 60159 | BC846B |
| 7104© | 5322 130 60159 | BC846B |
| 7105© | 5322 130 60159 | BC846B |
| 7106© | 5322 130 60159 | BC846B |
| 7111© | 5322 130 60159 | BC846B |
| 7123© | 5322 130 60159 | BC846B |
| 7131© | 5322 130 60159 | BC846B |
| 7133© | 5322 130 60159 | BC846B |
| 7150© | 4822 130 42804 | BC817-25 |
| 7151© | 5322 130 60159 | BC846B |
| 7152© | 4822 130 60373 | BC856B |
| 7153© | 5322 130 60159 | BC846B |
| 7154© | 4822 130 42804 | BC817-25 |
| 7155© | 5322 130 60159 | BC846B |
| 7156© | 5322 130 60159 | BC846B |
| 7160© | 5322 130 60159 | BC846B |

## ***ELECTRICAL PARTSLIST FRONT BOARD***

INTEGRATED CIRCUITS

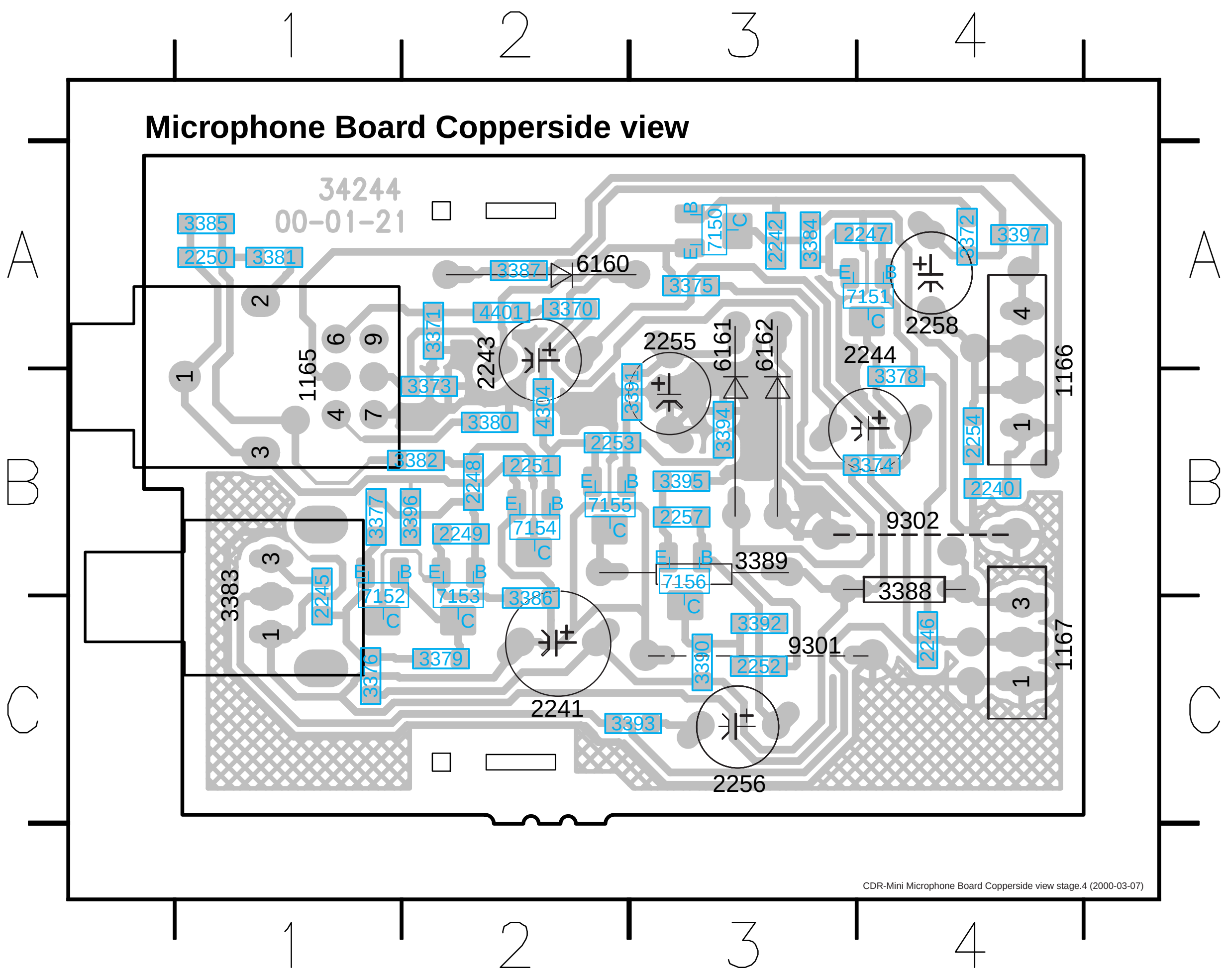
| | | |
|---|---|---|
| 7107 © | 4822 209 15449 | 74HC4094D, SHIFT REGISTER |
| 7108 © | 3103 308 84240 | MUP TMP88CU77F-FW-R8.2 |
| 7110 © | 9965 000 04931 | M24C01-WMN6,EEPROM |
| 7112 | 9322 155 22667 | IR RECEIVER TSOP2836 |
| 7120 © | 4822 209 17345 | M62320FP, I2C SHIFT REGISTER |
| 7121 | 4822 209 31981 | SAA6579T/V1 |
| 7122 © | 5322 209 11446 | HEF4051BT, MULTIPLEXER |
| 7130 © | 4822 209 15449 | 74HC4094D, SHIFT REGISTER |
| 7132 © | 4822 209 15449 | 74HC4094D, SHIFT REGISTER |
| 7140 © | 4822 209 17235 | 74LVU04D, 6-FOLD INVERTER |
| 7142 | 4822 209 10263 | HEF4052BP, SELECTOR IC |



Microphone Board

+12A
3370 6K8
3371 4K7
3380 10K
3381 22R
HSJ0914 1
1165
2250 4n7
3385 10K
3382 180R
7154 BC817-25
2251 1n
2248 100n
3396 220K
2249 1n
3386 33R
2241 470u
3376 2K2
3377 1M
3379 2K7
7153 BC847B
7152 BC857B
2245 470n
3383 20K
2246 470n
2247 1n
3378 1M
7151 BC847B
3374 2K7
3384 1K
2244 10u
3375 1K
2243 10u
3373 22K
BC817-25
7150
2242 10n
3372 2K2
2240 10n
6160 1N4148
3387 2K2
3389 470R
7155 BC847B
2253 1n
3394 47K
3391 10K
6161 1N4148
2255 10u
6162 1N4148
2252 100n
3390 1K
3392 1M
7156 BC847B
3395 150R
2256 1u
2257 1n
3393 4K7
2258 100u
3397 470R
3388 470R
2254 100n
1166
MIC_DET
MIC_KILL
EH-B
to design Front (0041)
1167
MIC
to AF-BOARD (26)
0V
0,7V
3,9V
4,6V
0,1V
1,9V
5,9V
1,3V
9,4V
7,3V
0,9V
0,3V
. . . V DC Voltages measured with connected microphone
EVM

| | |
|---|---|
| 1165 | D2 |
| 1166 | C13 |
| 1167 | E13 |
| 2240 | A13 |
| 2241 | B6 |
| 2242 | B12 |
| 2243 | B10 |
| 2244 | B10 |
| 2245 | B8 |
| 2246 | B9 |
| 2247 | C9 |
| 2248 | C6 |
| 2249 | C6 |
| 2250 | D3 |
| 2251 | D5 |
| 2252 | E8 |
| 2253 | E6 |
| 2254 | E11 |
| 2255 | E7 |
| 2256 | E9 |
| 2257 | F9 |
| 2258 | D12 |
| 3370 | A2 |
| 3371 | A2 |
| 3372 | A12 |
| 3373 | A11 |
| 3374 | B9 |
| 3375 | B10 |
| 3376 | B6 |
| 3377 | B6 |
| 3378 | B9 |
| 3379 | B6 |
| 3380 | C1 |
| 3381 | C2 |
| 3382 | C4 |
| 3383 | C8 |
| 3384 | C9 |
| 3385 | D4 |
| 3386 | D6 |
| 3387 | D6 |
| 3388 | F12 |
| 3389 | E6 |
| 3390 | E9 |
| 3391 | E7 |
| 3392 | E9 |
| 3393 | E10 |
| 3394 | E6 |
| 3395 | F9 |
| 3396 | C6 |
| 3397 | D12 |
| 6160 | D5 |
| 6161 | E7 |
| 6162 | E8 |
| 7150 | A11 |
| 7151 | C10 |
| 7152 | C7 |
| 7153 | C7 |
| 7154 | C4 |
| 7155 | E6 |
| 7156 | F8 |

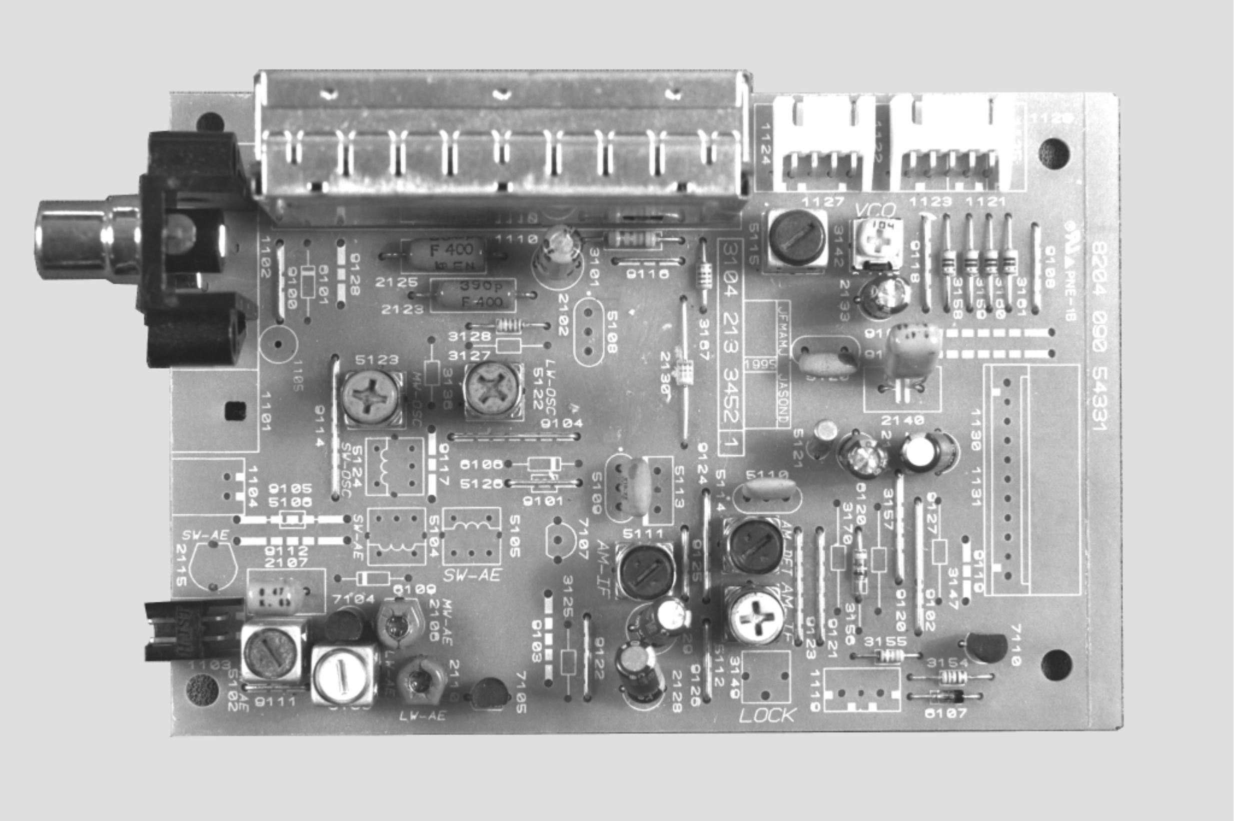


Microphone Board Copperside view

34244
00-01-21
1165
1166
1167
3383
2241
2243
2244
2255
2256
2258
6160
6161
6162
9301
9302
3388
3389

CDR-Mini Microphone Board Copperside view stage.4 (2000-03-07)

| | | | |
|---|---|---|---|
| 1165 | B1 | 3383 | B1 |
| 1166 | A4 | 3382 | B2 |
| 1167 | C4 | 3384 | A3 |
| 2240 | B4 | 3385 | A1 |
| 2241 | B2 | 3386 | C2 |
| 2242 | A3 | 3387 | A2 |
| 2243 | B2 | 3388 | B4 |
| 2244 | B4 | 3389 | B3 |
| 2245 | B1 | 3390 | C3 |
| 2246 | C4 | 3391 | B3 |
| 2247 | A4 | 3392 | C3 |
| 2248 | B2 | 3393 | C3 |
| 2249 | B2 | 3394 | B3 |
| 2250 | A1 | 3395 | B3 |
| 2251 | B2 | 3396 | B2 |
| 2252 | C3 | 3397 | A4 |
| 2253 | B2 | 4304 | B2 |
| 2254 | B4 | 4401 | A2 |
| 2255 | B2 | 6160 | A2 |
| 2256 | C3 | 6161 | B3 |
| 2257 | B3 | 6162 | B3 |
| 2258 | A4 | 7150 | A3 |
| 3370 | A2 | 7151 | A4 |
| 3371 | A2 | 7152 | B1 |
| 3372 | A4 | 7153 | B2 |
| 3373 | B2 | 7154 | B2 |
| 3374 | B4 | 7155 | B2 |
| 3375 | A3 | 7156 | B3 |
| 3376 | C1 | 9301 | C3 |
| 3377 | B1 | 9302 | B4 |
| 3378 | B4 | | |
| 3379 | C2 | | |
| 3380 | B2 | | |
| 3381 | A1 | | |


VCO
SW-AE
LW-OSC
SW-OSC
AM-IF
MW-AE
LW-AE
LOCK
3104 213 3452 1
8204 090 54331

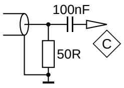
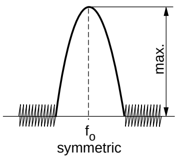
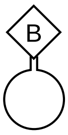
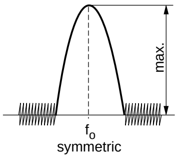
# Tuner 95

## (3 Band RDS Tuner)

**TABLE OF CONTENTS**

Adjustment table ............................................................7A-2
Blockdiagram ................................................................7A-3
Circuit Diagram .............................................................7A-4
Component Layout.........................................................7A-5
Electrical Partslist...........................................................7A-6

## TUNER ADJUSTMENT TABLE ( **TUNER 95** FM/MW/LW - version with AM-frame aerial )

| Waverange | Input frequency | Input | Tuned to | Adjust | Output | Scope/Voltmeter |
|---|---|---|---|---|---|---|
| *VARICAP ALIGNMENT* | | | | | | |
| **FM**<br>87.5 - 108MHz<br>(50kHz grid) | | | 108MHz | check | 6 | 7...9V |
| | | | 87.5MHz | check | | 1.3...2V |
| **MW**<br>531 - 1602kHz<br>(9kHz grid) | | | 1602kHz | 5123 | | 8.3V ±0.2V |
| | | | 531kHz | check | | 1V ±0.4V |
| **LW**<br>153 - 279kHz<br>(3kHz grid) | | | 279kHz | 5122 | | 8.3V ±0.2V |
| | | | 153kHz | check | | 1V ±0.4V |
| *FM - IF* | | | | | | |
| **FM** | 98MHz 1mV<br>continuous wave<br>**shortcircuit pin 21 of IC7108 to ground** | A | 98MHz | 5107 | 1<br>2 | 0mV ±3mV |
| *FM - VCO* | | | | | | |
| **FM** | 98MHz 1mV<br>continuous wave | A | 98MHz | 3142 | 3 | 152kHz ±1kHz 1) |
| *DISTORTION* | | | | | | |
| **FM** | 98MHz 1mV<br>90% Left + 9% pilot<br>mod=1kHz | A | 98MHz | mixcoil inside tuner 1110 | 4 | min. distortion |
| *AM IF* | | | | | | |
| **MW** | 450kHz<br>Δf=10kHz<br>as low as possible |  <br>C | MW | 5111 | 7 |  |
| | | | | 5112 | | |
| | 450kHz<br>continuous wave | | | 5114 | 1<br>2 | 0mV ±2mV |
| *AM RF* 2) | | | | | | |
| **MW** | 558kHz |  <br>Δf = ±30kHz<br>$V_{RF}$ as low as possible | 558kHz | 5102 | 7 |  |
| | 1494kHz | | 1494kHz | 2106 | | |
| **LW** | 198kHz | | 198kHz | 5103 | | |

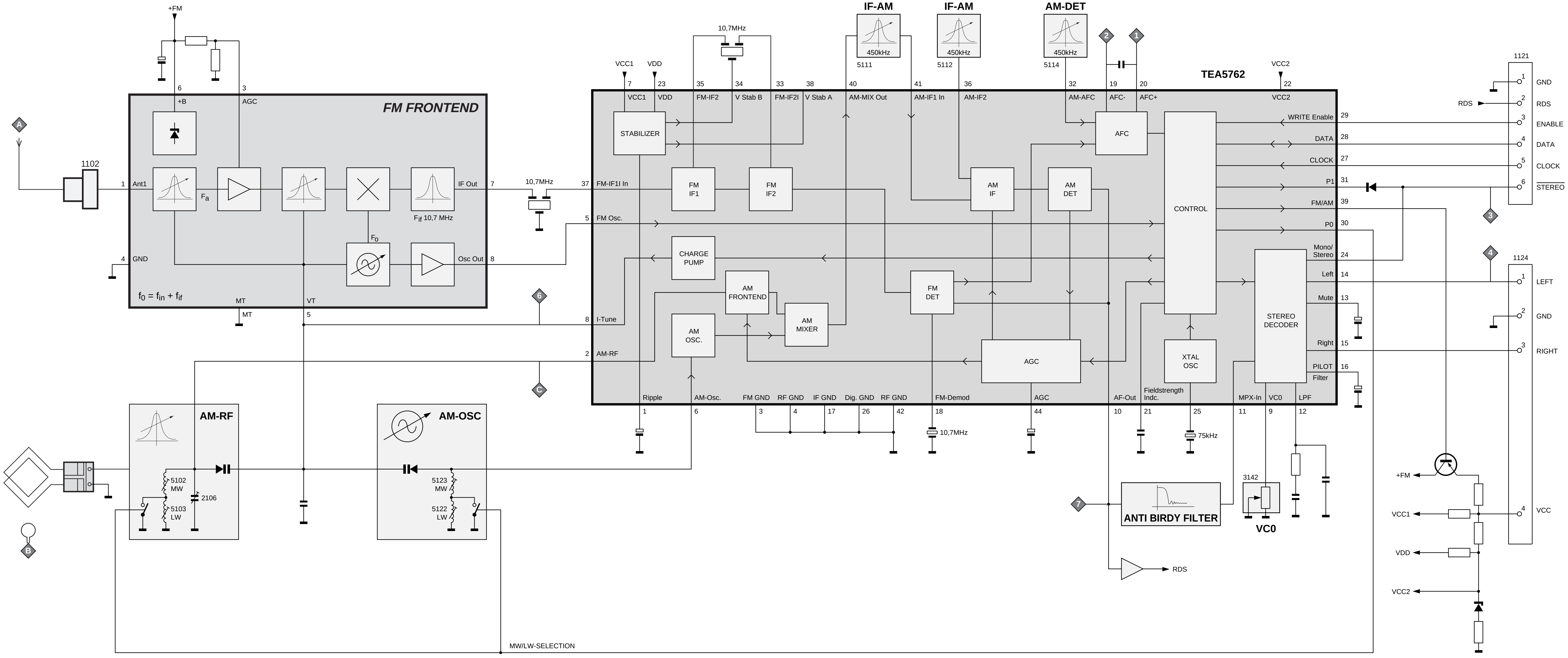
---

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

2) For AM RF adjustments the original frame antenna has to be used !

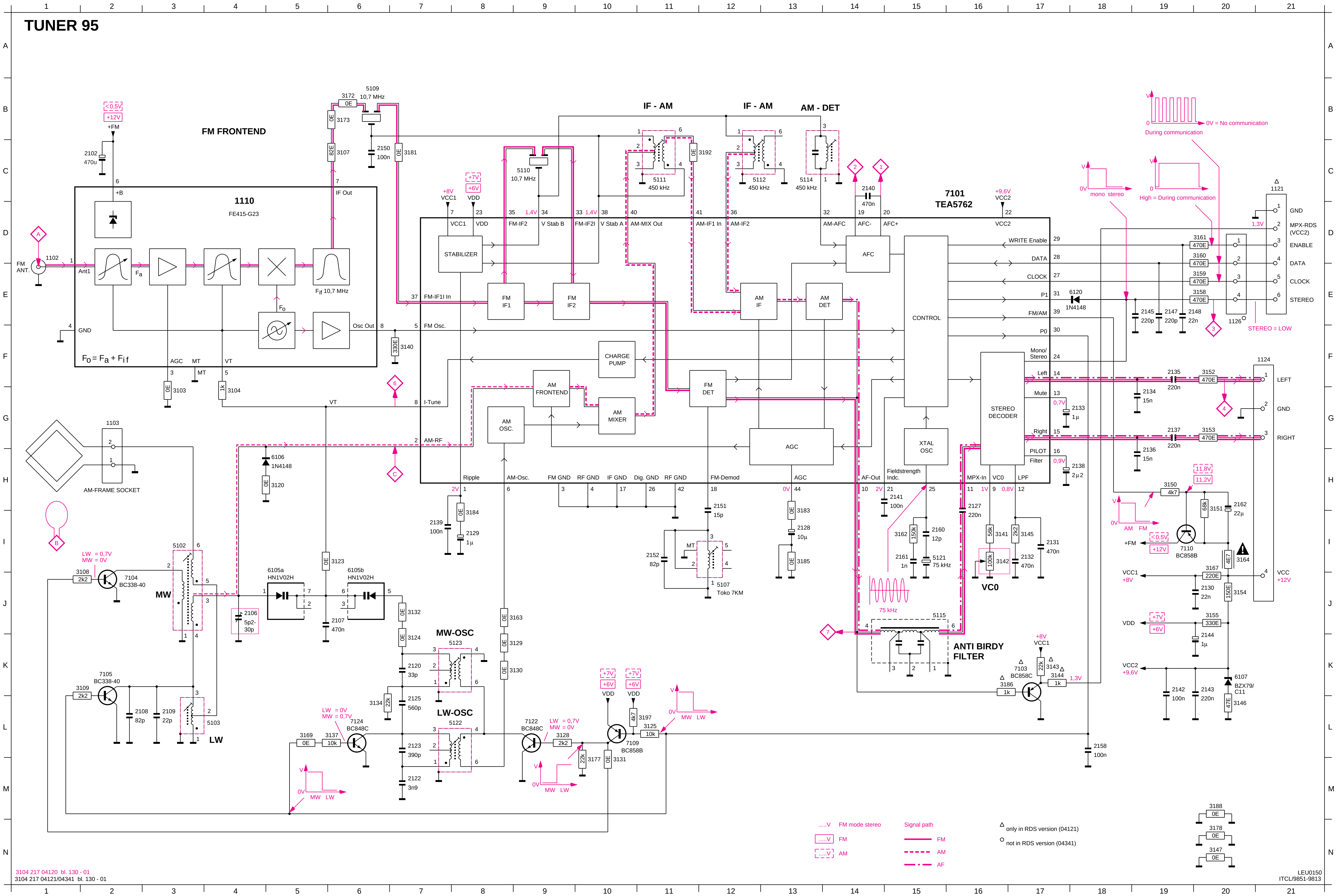
↕ Repeat

# BLOCK DIAGRAM TUNER95


+FM
6
3
+B
AGC
FM FRONTEND
A
1102
1
Ant1
Fa
F0
IF Out
7
Fif 10,7 MHz
4
GND
Osc Out
8
f0 = fin + fif
MT
VT
MT
5
10,7MHz
10,7MHz
VCC1
VDD
7
23
35
34
33
38
40
41
36
32
19
20
22
IF-AM
IF-AM
AM-DET
450kHz
450kHz
450kHz
5111
5112
5114
2
1
TEA5762
VCC2
VCC1
VDD
FM-IF2
V Stab B
FM-IF2I
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC-
AFC+
VCC2
STABILIZER
AFC
CONTROL
37
FM-IF1I In
FM IF1
FM IF2
AM IF
AM DET
5
FM Osc.
CHARGE PUMP
AM FRONTEND
AM MIXER
FM DET
8
I-Tune
AM OSC.
2
AM-RF
AGC
XTAL OSC
STEREO DECODER
6
C
WRITE Enable
29
DATA
28
CLOCK
27
P1
31
FM/AM
39
P0
30
Mono/ Stereo
24
Left
14
Mute
13
Right
15
PILOT Filter
16
Ripple
AM-Osc.
FM GND
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indc.
MPX-In
VC0
LPF
1
6
3
4
17
26
42
18
44
10
21
25
11
9
12
10,7MHz
75kHz
1121
1
GND
RDS
2
RDS
3
ENABLE
4
DATA
5
CLOCK
6
STEREO
3
4
1124
1
LEFT
2
GND
3
RIGHT
4
VCC
AM-RF
5102 MW
5103 LW
2106
AM-OSC
5123 MW
5122 LW
B
7
ANTI BIRDY FILTER
3142
VC0
RDS
+FM
VCC1
VDD
VCC2
MW/LW-SELECTION

| | |
|---|---|
| 1102 | D1 |
| 1103 | G2 |
| 1110 | D4 |
| 1121 | C21 |
| 1124 | F21 |
| 1126 | E20 |
| 2102 | C2 |
| 2106 | J4 |
| 2107 | J6 |
| 2108 | L2 |
| 2109 | L3 |
| 2120 | K7 |
| 2122 | M7 |
| 2123 | L7 |
| 2125 | L7 |
| 2127 | H16 |
| 2128 | I13 |
| 2129 | I8 |
| 2130 | J20 |
| 2131 | I17 |
| 2132 | I17 |
| 2133 | G18 |
| 2134 | G19 |
| 2135 | F19 |
| 2136 | H19 |
| 2137 | G19 |
| 2138 | H18 |
| 2139 | I7 |
| 2140 | C14 |
| 2141 | H15 |
| 2142 | K19 |
| 2143 | K20 |
| 2144 | K20 |
| 2145 | E19 |
| 2147 | E19 |
| 2148 | E19 |
| 2150 | C6 |
| 2151 | H12 |
| 2152 | I11 |
| 2158 | L18 |
| 2160 | I15 |
| 2161 | I15 |
| 2162 | H20 |
| 3103 | G3 |
| 3104 | G4 |
| 3107 | C6 |
| 3108 | J1 |
| 3109 | K1 |
| 3120 | H5 |
| 3123 | I6 |
| 3124 | K7 |
| 3125 | L11 |
| 3128 | L9 |
| 3129 | K8 |
| 3130 | K8 |
| 3131 | M10 |
| 3132 | J7 |
| 3134 | L6 |
| 3137 | L5 |
| 3140 | F7 |
| 3141 | I16 |
| 3142 | I16 |
| 3143 | K17 |
| 3144 | K17 |
| 3145 | I17 |
| 3146 | L20 |
| 3147 | N20 |
| 3150 | H19 |
| 3151 | I20 |
| 3152 | F20 |
| 3153 | G20 |
| 3154 | J20 |
| 3155 | J20 |
| 3158 | E19 |
| 3159 | E19 |
| 3160 | D19 |
| 3161 | D19 |
| 3162 | I15 |
| 3163 | J8 |
| 3164 | I20 |
| 3167 | I20 |
| 3169 | L5 |
| 3172 | B6 |
| 3173 | B6 |
| 3177 | M10 |
| 3178 | N20 |
| 3181 | C7 |
| 3183 | I13 |
| 3184 | I8 |
| 3185 | I13 |
| 3186 | K16 |
| 3188 | M20 |
| 3192 | C12 |
| 3197 | L11 |
| 5102 | I3 |
| 5103 | L4 |
| 5107 | J12 |
| 5109 | B6 |
| 5110 | C9 |
| 5111 | C11 |
| 5112 | C12 |
| 5114 | C13 |
| 5115 | J15 |
| 5121 | I15 |
| 5122 | L7 |
| 5123 | K7 |
| 6105a | I5 |
| 6105b | I6 |
| 6106 | H5 |
| 6107 | K20 |
| 6120 | E17 |
| 7101 | C15 |
| 7103 | K17 |
| 7104 | J2 |
| 7105 | K2 |
| 7109 | L10 |
| 7110 | I19 |
| 7122 | L9 |
| 7124 | L6 |

# TUNER 95

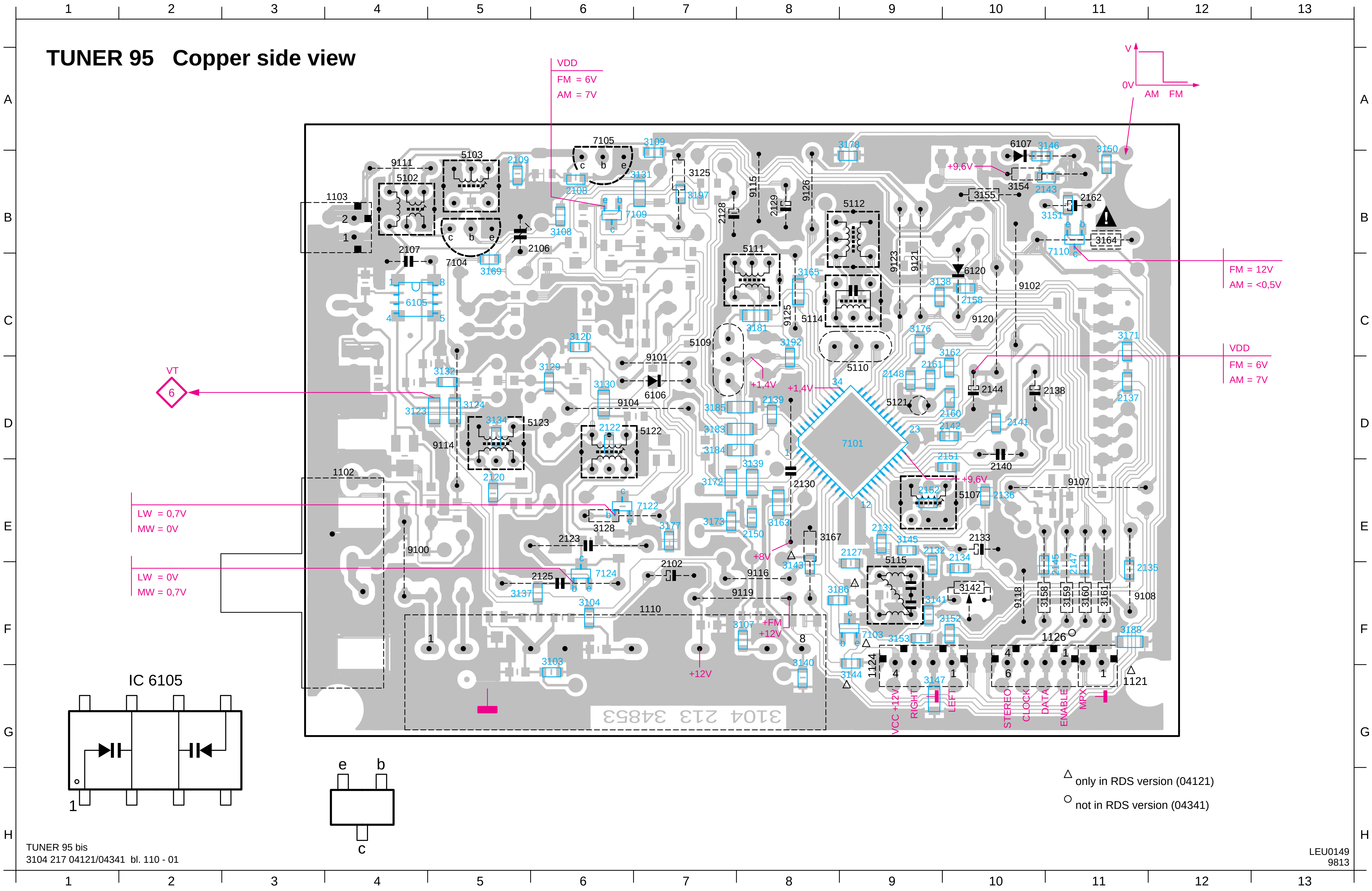

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H I J K L M N
FM FRONTEND
1110
FE415-G23
+B
IF Out
Ant1
Fa
Fif 10,7 MHz
Fo
Osc Out
GND
AGC
MT
VT
Fo = Fa + Fif
FM ANT.
1102
<0,5V
+12V
+FM
2102
470u
3103
0E
3104
1k
3172
0E
5109
10,7 MHz
3173
3107
82E
2150
100n
3181
3140
330E
VT
1103
AM-FRAME SOCKET
6106
1N4148
3120
IF - AM
IF - AM
AM - DET
5110
10,7 MHz
5111
450 kHz
5112
450 kHz
5114
450 kHz
3192
2140
470n
7101
TEA5762
+8V VCC1
+7V +6V VDD
+9,6V VCC2
VCC1
VDD
FM-IF2
V Stab B
FM-IF2I
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC-
AFC+
VCC2
1,4V
1,4V
STABILIZER
FM-IF1I In
FM IF1
FM IF2
AM IF
AM DET
AFC
CONTROL
FM Osc.
CHARGE PUMP
AM FRONTEND
AM MIXER
AM OSC.
FM DET
AGC
XTAL OSC
STEREO DECODER
I-Tune
AM-RF
Ripple
AM-Osc.
FM GND
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indc.
MPX-In
VCO
LPF
WRITE Enable
DATA
CLOCK
P1
FM/AM
P0
Mono/ Stereo
Left
Mute
Right
PILOT
Filter
0,7V
0,9V
2V
2V
0V
1V
0,8V
2133 1µ
2138 2µ2
2134 15n
2135 220n
2136 15n
2137 220n
3152 470E
3153 470E
1124
LEFT
GND
RIGHT
1121
GND
MPX-RDS (VCC2)
ENABLE
DATA
CLOCK
STEREO
1,3V
3161 470E
3160 470E
3159 470E
3158 470E
1126
6120
1N4148
2145 220p
2147 220p
2148 22n
STEREO = LOW
0V = No communication
During communication
High = During communication
mono stereo
2139 100n
3184
2129 1µ
2151 15p
2152 82p
5107
Toko 7KM
3183
2128 10µ
3185
2141 100n
3162
150k
2160 12p
2161 1n
5121 75 kHz
75 kHz
2127 220n
3141 56k
3142 100k
3145 2k2
2132 470n
2131 470n
VCO
5115
ANTI BIRDY FILTER
3150 4k7
11,8V
11,2V
3151 68k
2162 22µ
7110 BC858B
<0,5V
+12V
+FM
AM FM
3164 4E7
VCC1 +8V
3167 220E
2130 22n
3154 150E
VCC +12V
VDD
+7V +6V
3155 330E
2144 1µ
VCC2 +9,6V
2142 100n
2143 220n
6107 BZX79/ C11
3146 47E
+8V VCC1
7103 BC858C
3186 1k
3143 22k
3144 1k
1,3V
2158 100n
LW = 0,7V
MW = 0V
3108 2k2
7104 BC338-40
5102
MW
2106 5p2- 30p
6105a HN1V02H
6105b HN1V02H
3123
2107 470n
3132
3124
MW-OSC
5123
2120 33p
2125 560p
3134 22k
LW-OSC
5122
2123 390p
2122 3n9
3163
3129
3130
7105 BC338-40
3109 2k2
2108 82p
2109 22p
5103
LW
LW = 0V
MW = 0,7V
7124 BC848C
3169 0E
3137 10k
MW LW
7122 BC848C
LW = 0,7V
MW = 0V
3128 2k2
3177 22k
3131 0E
MW LW
+7V +6V VDD
3197 4k7
3125 10k
7109 BC858B
MW LW
....V FM mode stereo
....V FM
....V AM
Signal path
FM
AM
AF
only in RDS version (04121)
not in RDS version (04341)
3188 0E
3178 0E
3147 0E

3104 217 04120 bl. 130 - 01
3104 217 04121/04341 bl. 130 - 01

LEU0150
ITCL/9851-9813

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1102 | E4 | 2107 | B4 | 2128 | B7 | 2136 | F10 | 2144 | D10 | 2160 | D9 | 3120 | C6 | 3132 | D5 | 3143 | F8 | 3153 | F9 | 3163 | E8 | 3176 | C9 | 3188 | F11 | 5111 | B8 | 6106 | D7 | 7110 | C11 | 9108 | F11 | 9121 | C9 |
| 1103 | B4 | 2108 | B6 | 2129 | B8 | 2137 | D11 | 2145 | F11 | 2161 | D9 | 3123 | D4 | 3134 | D5 | 3144 | G9 | 3154 | B10 | 3164 | B11 | 3177 | E7 | 3192 | C8 | 5112 | B9 | 6107 | A10 | 7122 | E7 | 9111 | B4 | 9123 | C9 |
| 1110 | F7 | 2109 | B5 | 2130 | E8 | 2138 | D10 | 2147 | F11 | 2162 | B11 | 3124 | D5 | 3137 | F5 | 3145 | E9 | 3155 | B10 | 3165 | C8 | 3178 | A8 | 3197 | B7 | 5114 | C8 | 6120 | C10 | 7124 | F6 | 9114 | D5 | 9125 | C8 |
| 1121 | G11 | 2120 | E5 | 2131 | E9 | 2139 | D8 | 2148 | D9 | 3103 | G6 | 3125 | B7 | 3138 | C9 | 3146 | A10 | 3158 | F11 | 3167 | E8 | 3181 | C8 | 5102 | B4 | 5115 | F9 | 7101 | D9 | 9100 | E4 | 9115 | B8 | 9126 | B8 |
| 1124 | G9 | 2122 | D6 | 2132 | E9 | 2140 | E10 | 2150 | E8 | 3104 | F6 | 3128 | E6 | 3139 | E8 | 3147 | G9 | 3159 | F11 | 3169 | C5 | 3183 | D7 | 5103 | B5 | 5121 | D9 | 7103 | F9 | 9101 | D7 | 9116 | F8 | | |
| 1126 | F10 | 2123 | E6 | 2133 | E10 | 2141 | D10 | 2151 | E9 | 3107 | F7 | 3129 | D6 | 3140 | G8 | 3150 | B11 | 3160 | F11 | 3171 | C11 | 3184 | D7 | 5107 | E10 | 5122 | D7 | 7104 | C5 | 9102 | C10 | 9118 | F10 | | |
| 2102 | F7 | 2125 | F6 | 2134 | F10 | 2142 | D9 | 2152 | E9 | 3108 | B6 | 3130 | D6 | 3141 | F9 | 3151 | B10 | 3161 | F11 | 3172 | E7 | 3185 | D7 | 5109 | C7 | 5123 | D5 | 7105 | A6 | 9104 | D6 | 9119 | F7 | | |
| 2106 | B5 | 2127 | E9 | 2135 | F11 | 2143 | B10 | 2158 | C10 | 3109 | A7 | 3131 | B6 | 3142 | F10 | 3152 | F9 | 3162 | C9 | 3173 | E7 | 3186 | F8 | 5110 | D9 | 6105 | C4 | 7109 | B6 | 9107 | E11 | 9120 | C10 | | |

# TUNER 95 Copper side view


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
VDD
FM = 6V
AM = 7V
V
0V
AM FM
FM = 12V
AM = <0,5V
VDD
FM = 6V
AM = 7V
VT
6
LW = 0,7V
MW = 0V
LW = 0V
MW = 0,7V
+9,6V
+1,4V
+1,4V
+9,6V
+8V
+FM
+12V
+12V
VCC +12V
RIGHT
LEFT
STEREO
CLOCK
DATA
ENABLE
MPX
7101
6105
3104 213 34853
IC 6105
1
e
b
c

△ only in RDS version (04121)

○ not in RDS version (04341)

TUNER 95 bis
3104 217 04121/04341 bl. 110 - 01

LEU0149
9813

## ***ELECTRICAL PARTSLIST TUNER 95***

### MISCELLANEOUS

| | | |
|---|---|---|
| 1102 | 4822 267 10283 | SOCKET COAX, IEC 75Ω |
| 1103 | 4822 265 31184 | JST CONNECTOR 2 POLE |
| 1110 | 4822 210 10492 | FRONTEND ASSY /02/08 |
| 1110 | 4822 210 10739 | FM-FRONTEND FE415-G23 |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2102 | 4822 124 80791 | 470µF | 20% | 16V |
| 2106 | 4822 125 60102 | 30pF TRIMCAP | | |
| 2107 | 4822 121 51252 | 470nF | 5% | 63V |
| 2108 © | 4822 126 13695 | 82pF | 1% | 63V |
| 2109 © | 5322 122 32658 | 22pF | 5% | 50V |
| 2120 © | 5322 122 32659 | 33pF | 5% | 50V |
| 2122 © | 5322 126 10465 | 3,9nF | 10% | 63V |
| 2123 | 4822 121 10766 | 390pF | 1% | 630V |
| 2125 | 4822 121 10578 | 560pF | 1% | 630V |
| 2127 © | 4822 122 32927 | 220nF | 10% | 63V |
| 2128 | 4822 124 41579 | 10µF | 20% | 50V |
| 2129 | 4822 124 40242 | 1µF | 20% | 63V |
| 2130 | 4822 126 11585 | 22nF | 20% | 50V |
| 2131 © | 4822 122 33325 | 470nF | 20% | 50V |
| 2132 © | 4822 122 33325 | 470nF | 20% | 50V |
| 2133 | 4822 124 40242 | 1µF | 20% | 63V |
| 2134 © | 4822 126 13188 | 15nF | 5% | 63V |
| 2135 © | 4822 122 32927 | 220nF | 10% | 63V |
| 2136 © | 4822 126 13188 | 15nF | 5% | 63V |
| 2137 © | 4822 122 32927 | 220nF | 10% | 63V |
| 2138 | 4822 124 41576 | 2,2µF | 20% | 50V |
| 2140 | 4822 121 51252 | 470nF | 5% | 63V |
| 2141 © | 4822 122 31947 | 100nF | 20% | 50V |
| 2142 © | 4822 122 31947 | 100nF | 20% | 50V |
| 2143 © | 4822 122 32927 | 220nF | 10% | 63V |
| 2144 | 4822 124 40242 | 1µF | 20% | 63V |
| 2145 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2147 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2148 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2150 © | 4822 122 31947 | 100nF | 20% | 50V |
| 2158 © | 4822 122 31947 | 100nF | 20% | 50V |
| 2160 © | 4822 122 32139 | 12pF | 5% | 63V |
| 2161 © | 5322 122 34123 | 1nF | 10% | 50V |
| 2162 | 4822 124 81151 | 22µF | 20% | 50V |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3090 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3091 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3092 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3102 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3103 © | 4822 051 20184 | 180kΩ | 5% | 0,1W |
| 3104 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3107 © | 4822 051 20829 | 82Ω | 5% | 0,1W |
| 3108 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3109 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3120 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 3123 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3124 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3125 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3128 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3129 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 3130 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3131 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3132 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 3134 © | 4822 051 20223 | 22kΩ | 5% | 0,1W |
| 3137 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3140 © | 4822 051 20331 | 330Ω | 5% | 0,1W |
| 3141 © | 4822 117 11148 | 56kΩ | 1% | 0,1W |
| 3142 | 4822 100 11163 | 100kΩ TRIMPOT LIN. | | |
| 3143 © | 4822 051 20223 | 22kΩ | 5% | 0,1W |
| 3144 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3145 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3146 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3150 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3151 © | 4822 051 20683 | 68kΩ | 5% | 0,1W |
| 3152 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3153 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3154 | 4822 116 83868 | 150Ω | 5% | 0,5W |
| 3155 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3158 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3159 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3160 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3161 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3162 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3163 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3164 | 4822 052 10478 | 4,7Ω | 5% | NFR |
| 3167 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3169 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 3172 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3181 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3183 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3184 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3185 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3186 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3188 © | 4822 051 10008 | CHIP JUMPER 1206 | | |
| 3191 © | 4822 117 10353 | 150Ω | 5% | 0,1W |
| 3192 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 3197 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |

### COILS

| | | |
|---|---|---|
| 5102 | 4822 157 71634 | RF-COIL MW |
| 5103 | 4822 157 71635 | RF-COIL LW |
| 5109 | 4822 157 71639 | FM-IF FILTER 10,7MHz |
| 5110 | 4822 242 70665 | FM-IF FILTER 10,7MHz |
| 5111 | 4822 158 60511 | AM-IF FILTER 450kHz |
| 5112 | 4822 157 70302 | AM-IF FILTER 450kHz |
| 5114 | 4822 157 70302 | AM-IF FILTER 450kHz |
| 5115 | 4822 157 71636 | ANTI BIRDY FILTER |
| 5120 | 4822 242 10251 | CER. DISCR. 10.7MG61KA-TF21 |
| 5121 | 4822 242 10261 | QUARTZ 75kHz |
| 5122 | 4822 157 60517 | RF-COIL AM |
| 5123 | 4822 157 60517 | RF-COIL AM |

### DIODES

| | | |
|---|---|---|
| 6105 © | 4822 130 83075 | HN1V02H |
| 6106 | 4822 130 30621 | 1N4148 |
| 6107 | 4822 130 34488 | BZX79-C11 |
| 6120 | 4822 130 30621 | 1N4148 |

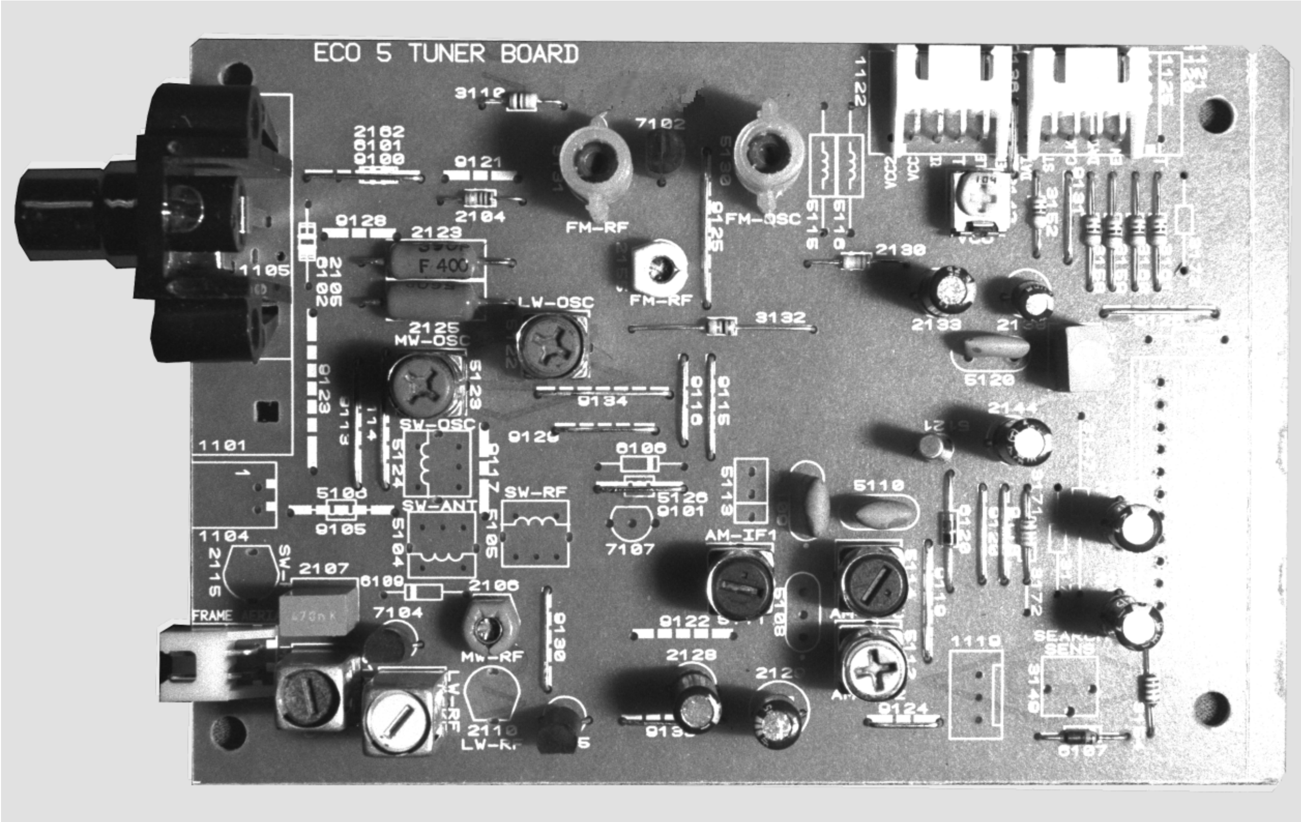
### TRANSISTORS

| | | |
|---|---|---|
| 7103 © | 4822 130 42513 | BC858C |
| 7104 | 5322 130 44779 | BC338-40 |
| 7105 | 5322 130 44779 | BC338-40 |
| 7109 © | 5322 130 41983 | BC858B |
| 7110 © | 5322 130 41983 | BC858B |
| 7122 © | 5322 130 42136 | BC848C |
| 7124 © | 5322 130 42136 | BC848C |

## ***ELECTRICAL PARTSLIST TUNER 95***

### INTEGRATED CIRCUITS

| | | |
|---|---|---|
| 7101 | 4822 209 90315 | TEA5762H/V1, RADIO IC |


ECO 5 TUNER BOARD
FM-RF
FM-OSC
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
AM-IF1
MW-RF
LW-RF
FRAME AERIAL
1105
1101
1104
1110
1122
2123
2125
2104
2128
2133
2130
2144
3132
7102
7104
7107
5110
5120
5126
9101
9121
9122
9124
9134
SEARCH SENS

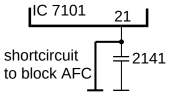
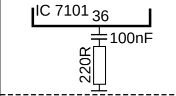
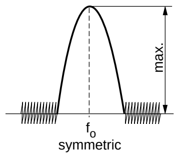
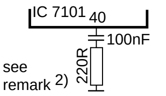
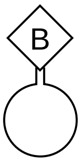
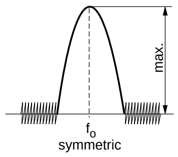
# Tuner ECO 5

## (3 Band Tuner)

**TABLE OF CONTENTS**

Adjustment table ............................................................7B-2
Blockdiagram ................................................................7B-3
Circuit Diagram ..............................................................7B-4
Component Layout.........................................................7B-5
Electrical Partslist...........................................................7B-6

# TUNER ADJUSTMENT TABLE ( ECO5 FM/MW- and FM/MW/LW - versions with AM-frame aerial )

| Waverange | Input frequency | Input | Tuned to | Adjust | Output | Scope/Voltmeter | |
|---|---|---|---|---|---|---|---|
| *VARICAP ALIGNMENT* | | | | | | | |
| **FM**<br>87.5 - 108MHz<br>(65.81 - 74, 87.5 - 108MHz) | | | 108MHz | 5130 | 1 | 8V ±0.2V | |
| | | | 87.5MHz<br>(65.81MHz) | check | | 4.3V ±0.5V<br>(1.2V ±0.5V) | |
| **MW**<br>FM/AM-version, 10kHz grid<br>530 - 1700kHz | | | 1700kHz | 5123 | | 8V ±0.2V | |
| | | | 530kHz | check | | 1.1V ±0.4V | |
| FM/MW-version, 9kHz grid<br>531 - 1602kHz | | | 1602kHz | 5123 | | 6.9V ±0.2V | |
| | | | 531kHz | check | | 1.1V ±0.4V | |
| **LW**<br>153 - 279kHz | | | 279kHz | 5122 | | 8V ±0.2V | |
| | | | 153kHz | check | | 1.1V ±0.4V | |
| **MW**<br>FM/MW/LW- version, 9kHz grid<br>531 - 1602kHz | | | 1602kHz | 5123 | | 8V ±0.2V | |
| | | | 531kHz | check | | 1.1V ±0.4V | |
| *FM IF* | | | | | | | |
| **FM** | 10.7MHz, 50mV<br>continuous wave | F |  | 5119 | 2 | 0 ± 3 mV DC | |
| *FM RF* | | | | | | | |
| **FM**<br>87.5 - 108MHz<br>(65.81 - 74, 87.5 - 108MHz) | 108MHz | A | 108MHz | 2155 | 4 | MAX | ↕ |
| | 87.5MHz<br>(65.81MHz) | mod=1kHz<br>Δf=±22.5kHz | 87.5MHz<br>(65.81MHz) | 5131 | | | |
| *VCO* | | | | | | | |
| **FM** | 98MHz, 1mV<br>continuous wave | A | 98MHz | 3142 | 3 | 152kHz ±1kHz 1) | |
| *AM IF* | | | | | | | |
| **MW** | 450kHz<br>connect pin 6 of IC 7101 (AM Osc.) with short wire to ground (pin 4) | C<br>Δf=±15kHz<br>$V_{RF}$ = 3mV |  | 5111 | 4 |  | |
| | | |  see remark 2) | 5112 | | | |
| *AM AFC*<br>**MW** | | C<br>continuous wave<br>$V_{RF}$ = 10mV | | 5114 | 2 | 0 ± 2 mV DC | |
| *AM RF 3)* | | | | | | | |
| **MW** 4)<br>FM/MW/LW- and FM/MW-version<br>( 9kHz grid)<br>531 - 1602kHz | 1494kHz |  | 1494kHz | 2106 | 4 |  | ↕ |
| | 558kHz | | 558kHz | 5102 | | | |
| **LW** | 198kHz | | 198kHz | 5103 | | | |
| **MW**<br>FM/AM-version, 10kHz grid<br>530 - 1700kHz | 1500kHz | Δf = ±30kHz<br>$V_{RF}$ as low as possible | 1500kHz | 2106 | | | ↕ |
| | 560kHz | | 560kHz | 5102 | | | |

ECO5, discr. coil, 090797

Use service test program. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

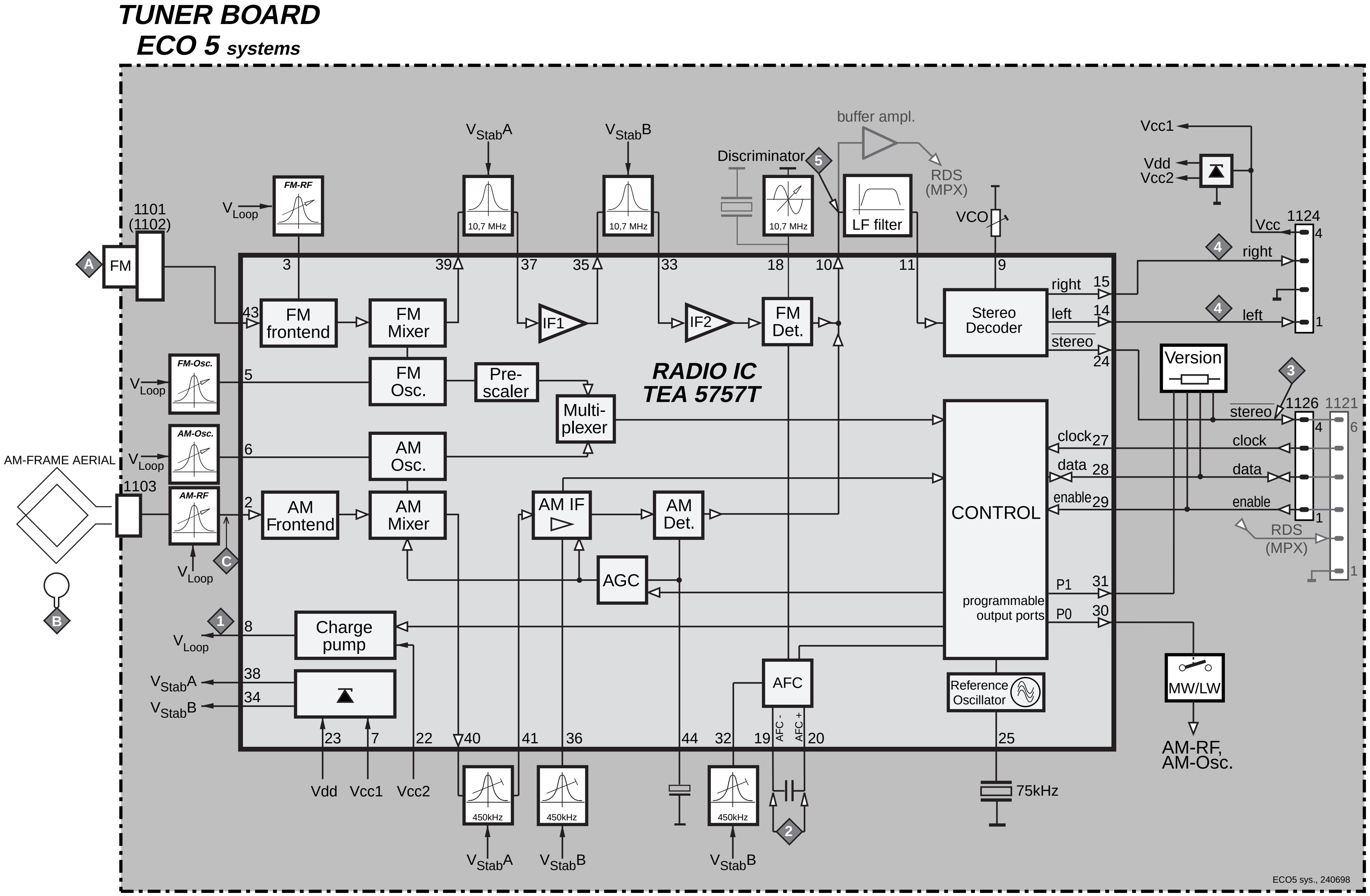
2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used !

4) MW has to be aligned before LW.

↕ Repeat

## BLOCK DIAGRAM TUNER ECO5


TUNER BOARD
ECO 5 systems
RADIO IC
TEA 5757T
1101
(1102)
FM
A
B
C
AM-FRAME AERIAL
1103
FM-RF
FM-Osc.
AM-Osc.
AM-RF
$V_{Loop}$
$V_{Stab}A$
$V_{Stab}B$
10,7 MHz
Discriminator
5
buffer ampl.
RDS
(MPX)
LF filter
VCO
Vcc1
Vdd
Vcc2
Vcc
1124
4
1
right
left
FM
frontend
FM
Mixer
FM
Osc.
Pre-
scaler
Multi-
plexer
IF1
IF2
FM
Det.
Stereo
Decoder
right
left
stereo
Version
3
1126
1121
6
stereo
clock
data
enable
CONTROL
programmable
output ports
P1
P0
AM
Osc.
AM
Frontend
AM
Mixer
AM IF
AM
Det.
AGC
Charge
pump
1
2
AFC
AFC -
AFC +
Reference
Oscillator
MW/LW
AM-RF,
AM-Osc.
75kHz
450kHz
Vdd
Vcc1
Vcc2
3
39
37
35
33
18
10
11
9
43
5
6
2
8
38
34
15
14
24
27
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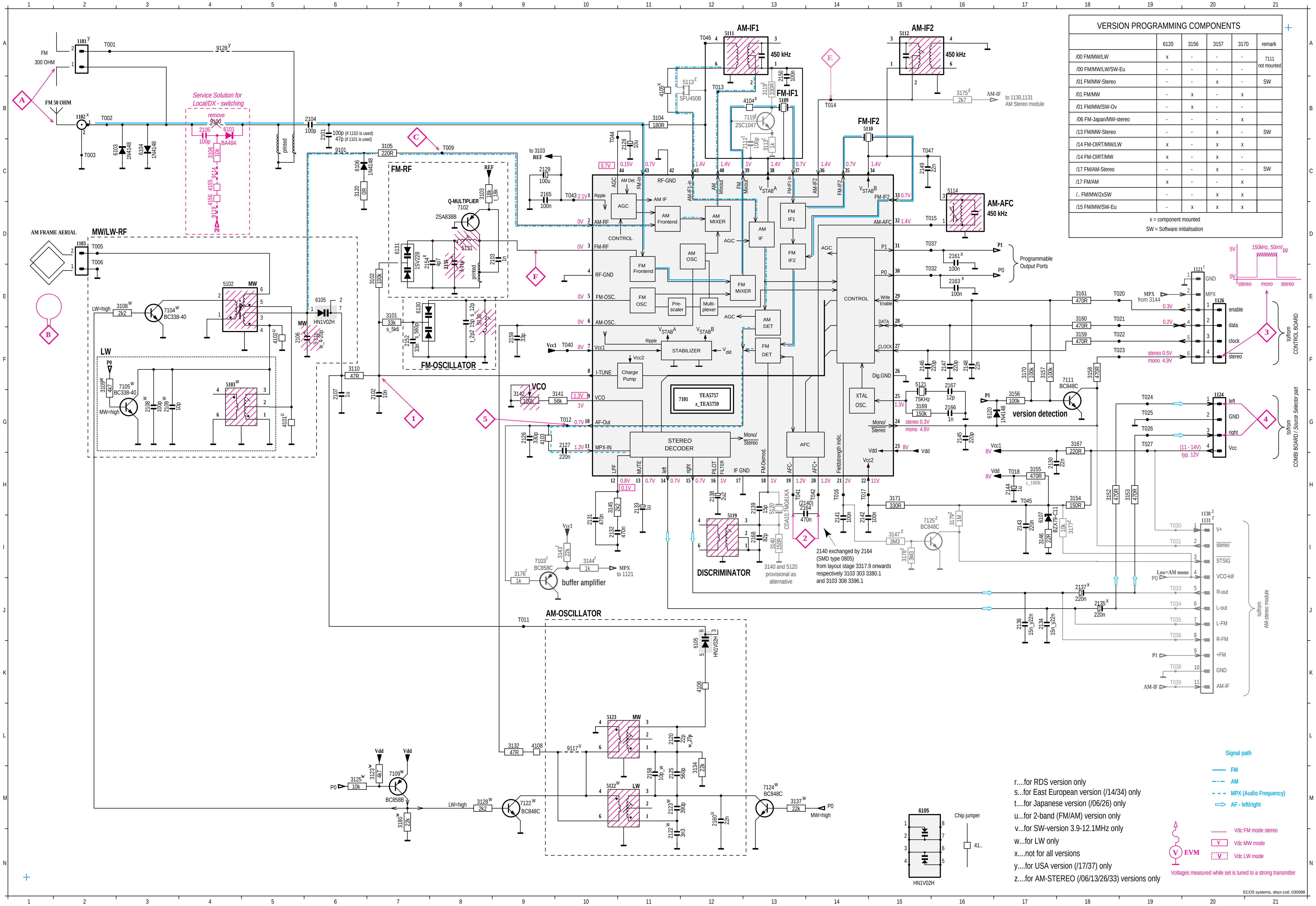
19
20
25
ECO5 sys., 240698

# TUNER BOARD ECO5 / Systems


FM 300 OHM
FM 50 OHM
AM FRAME AERIAL
MW/LW-RF
LW
LW=high
MW=high
Service Solution for Local/DX - switching
remove
FM-RF
Q-MULTIPLIER 7102 2SA838B
FM-OSCILLATOR
VCO
buffer amplifier
AM-OSCILLATOR
DISCRIMINATOR
AM-IF1
AM-IF2
FM-IF1
FM-IF2
AM-AFC 450 kHz
450 kHz
7101 TEA5757 z_TEA5759
AGC
AM Frontend
AM MIXER
AM IF
AM OSC
FM Frontend
FM OSC
Pre-scaler
Multi-plexer
FM MIXER
AM DET
FM DET
FM IF1
FM IF2
CONTROL
STABILIZER
Charge Pump
STEREO DECODER
XTAL OSC.
AFC
Programmable Output Ports
version detection
to/from CONTROL BOARD
to/from COMBI BOARD / Source Selector part
to/from AM-stereo module
to 1130,1131 AM Stereo module
2140 exchanged by 2164 (SMD type 0805) from layout stage 3317.9 onwards respectively 3103 303 3380.1 and 3103 308 3396.1
3140 and 5120 provisional as alternative
150kHz, 50mVpp
stereo mono stereo
Chip jumper
6105 HN1V02H
Signal path
FM
AM
MPX (Audio Frequency)
AF - left/right
EVM
Vdc FM mode stereo
Vdc MW mode
Vdc LW mode
Voltages measured while set is tuned to a strong transmitter
ECO5 systems, discr.coil, 030998

## VERSION PROGRAMMING COMPONENTS

| | 6120 | 3156 | 3157 | 3170 | remark |
|---|---|---|---|---|---|
| /00 FM/MW/LW | x | - | - | - | 7111 not mounted |
| /00 FM/MW/LW/SW-Eu | - | - | - | - | |
| /01 FM/MW-Stereo | - | - | x | - | SW |
| /01 FM/MW | - | x | - | x | |
| /01 FM/MW/SW-Ov | - | x | - | - | |
| /06 FM-Japan/MW-stereo | - | - | - | x | |
| /13 FM/MW-Stereo | - | - | x | - | SW |
| /14 FM-OIRT/MW/LW | x | - | x | x | |
| /14 FM-OIRT/MW | x | - | x | - | |
| /17 FM/AM-Stereo | - | - | x | - | SW |
| /17 FM/AM | x | - | - | x | |
| /.. FM/MW/2xSW | - | - | x | x | |
| /15 FM/MW/SW-Eu | - | x | x | x | |

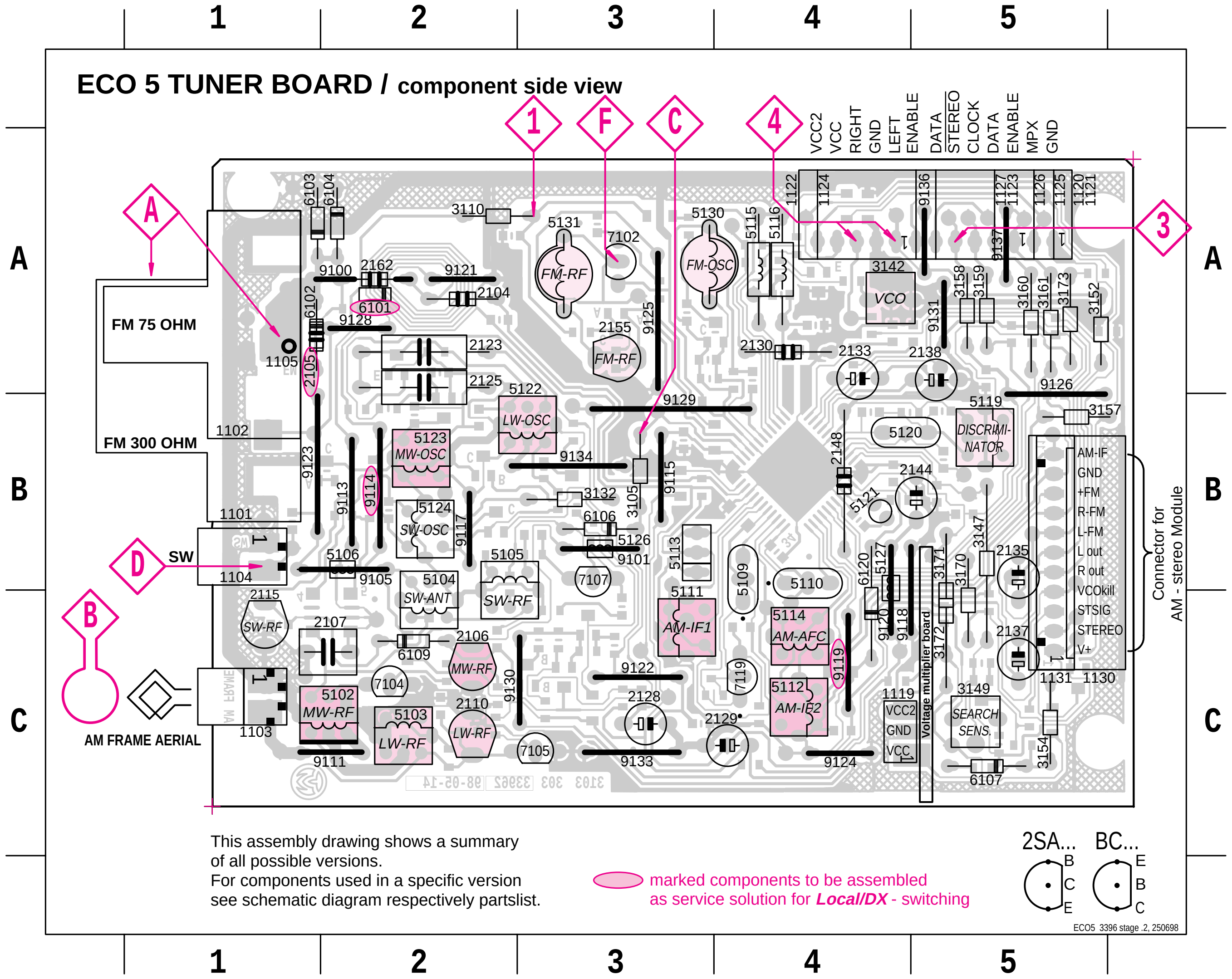
x = component mounted
SW = Software initialisation

r....for RDS version only
s...for East European version (/14/34) only
t....for Japanese version (/06/26) only
u...for 2-band (FM/AM) version only
v...for SW-version 3.9-12.1MHz only
w...for LW only
x....not for all versions
y....for USA version (/17/37) only
z....for AM-STEREO (/06/13/26/33) versions only

| | |
|---|---|
| 1101 | A 1 |
| 1102 | B 2 |
| 1103 | D 2 |
| 1121 | E20 |
| 1124 | G20 |
| 1126 | E20 |
| 1130 | I20 |
| 1131 | I20 |
| 2101 | C 6 |
| 2102 | G 7 |
| 2103 | D 9 |
| 2104 | B 6 |
| 2106 | F 5 |
| 2107 | G 6 |
| 2108 | G 3 |
| 2109 | G 3 |
| 2111 | C13 |
| 2120 | L11 |
| 2122 | N11 |
| 2123 | M11 |
| 2125 | M11 |
| 2126 | G 9 |
| 2127 | G10 |
| 2128 | C11 |
| 2129 | C 9 |
| 2130 | H17 |
| 2131 | I10 |
| 2132 | I10 |
| 2133 | H11 |
| 2134 | J17 |
| 2135 | J18 |
| 2136 | J17 |
| 2137 | J18 |
| 2138 | H12 |
| 2139 | H13 |
| 2140 | H14 |
| 2141 | H14 |
| 2142 | H14 |
| 2143 | I17 |
| 2144 | H17 |
| 2145 | G16 |
| 2146 | F15 |
| 2147 | F16 |
| 2148 | F16 |
| 2149 | C15 |
| 2150 | B13 |
| 2152 | F 7 |
| 2153 | E 8 |
| 2154 | E 7 |
| 2155 | D 8 |
| 2158 | M11 |
| 2159 | F 9 |
| 2160 | M12 |
| 2161 | D16 |
| 2163 | E16 |
| 2164 | H14 |
| 2165 | C 9 |
| 2166 | G16 |
| 2167 | F16 |
| 2168 | I 13 |
| 3101 | E 7 |
| 3102 | E 7 |
| 3103 | C 8 |
| 3104 | B11 |
| 3105 | C 7 |
| 3108 | E 3 |
| 3109 | F 2 |
| 3110 | F 6 |
| 3113 | C13 |
| 3119 | B13 |
| 3120 | C 6 |
| 3123 | M 7 |
| 3125 | M 6 |
| 3128 | M 8 |
| 3132 | L 9 |
| 3134 | M12 |
| 3137 | M13 |
| 3140 | I13 |
| 3141 | G10 |
| 3142 | G 9 |
| 3143 | I10 |
| 3144 | I10 |
| 3145 | H10 |
| 3146 | I17 |
| 3147 | I15 |
| 3152 | H18 |
| 3153 | H19 |
| 3154 | H18 |
| 3155 | H17 |
| 3156 | G17 |
| 3157 | F17 |
| 3158 | F18 |
| 3159 | F18 |
| 3160 | E18 |
| 3161 | E18 |
| 3167 | G18 |
| 3169 | G15 |
| 3170 | F17 |
| 3171 | H15 |
| 3175 | B16 |
| 3176 | J 9 |
| 3177 | I18 |
| 3178 | I15 |
| 3179 | I16 |
| 3180 | M7 |
| 4101 | G 5 |
| 4102 | F 5 |
| 4103 | G 9 |
| 4104 | B13 |
| 4105 | B11 |
| 4106 | K12 |
| 4108 | L 9 |
| 5102 | E 4 |
| 5103 | F 4 |
| 5109 | B13 |
| 5110 | B14 |
| 5111 | A13 |
| 5112 | A15 |
| 5113 | B12 |
| 5114 | C16 |
| 5119 | I 12 |
| 5120 | H13 |
| 5121 | F15 |
| 5122 | M11 |
| 5123 | L11 |
| 5130 | E 8 |
| 5131 | D 8 |
| 6103 | C 2 |
| 6104 | C 3 |
| 6105 | K12 |
| 6105 | E 6 |
| 6106 | C 6 |
| 6107 | H17 |
| 6120 | G16 |
| 6130 | E 7 |
| 6131 | D 7 |
| 7101 | G11 |
| 7102 | D 8 |
| 7103 | I 9 |
| 7104 | E 3 |
| 7105 | F 2 |
| 7109 | M 7 |
| 7111 | F18 |
| 7119 | B13 |
| 7122 | M 9 |
| 7124 | M13 |
| 7125 | I16 |
| 9100 | B 4 |
| 9101 | C 6 |
| 9117 | L10 |
| 9128 | A 4 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1101 | A1 | 2106 | C2 | 2137 | C5 | 3149 | C5 | 3173 | A5 | 5114 | C4 | 5130 | A3 | 7104 | C2 | 9117 | B2 | 9129 | B3 |
| 1102 | A1 | 2107 | C2 | 2138 | A5 | 3152 | A5 | 5102 | C2 | 5115 | A4 | 5131 | A3 | 7105 | C3 | 9118 | B4 | 9130 | C3 |
| 1103 | C1 | 2110 | C2 | 2144 | B5 | 3154 | C5 | 5103 | C2 | 5116 | A4 | 6101 | A2 | 7107 | B3 | 9119 | C4 | 9131 | A5 |
| 1104 | B1 | 2115 | C1 | 2148 | B4 | 3157 | B5 | 5104 | C2 | 5119 | B5 | 6102 | A1 | 7119 | C4 | 9120 | B4 | 9133 | C3 |
| 1105 | A1 | 2123 | A2 | 2155 | A3 | 3158 | A5 | 5105 | B2 | 5120 | B4 | 6103 | A1 | 9100 | A2 | 9121 | A2 | 9134 | B3 |
| 1119 | C5 | 2125 | A2 | 2162 | A2 | 3159 | A5 | 5106 | B2 | 5121 | B4 | 6104 | A2 | 9101 | B3 | 9122 | C3 | 9136 | A5 |
| 1120 | A5 | 2128 | C3 | 3105 | B3 | 3160 | A5 | 5109 | B4 | 5122 | B3 | 6106 | B3 | 9105 | B2 | 9123 | B1 | 9137 | A5 |
| 1130 | B5 | 2129 | C4 | 3110 | A2 | 3161 | A5 | 5110 | B4 | 5123 | B2 | 6107 | C5 | 9111 | C2 | 9124 | C4 | | |
| 1131 | B5 | 2130 | A4 | 3132 | B3 | 3170 | C5 | 5111 | C3 | 5124 | B2 | 6109 | C2 | 9113 | B2 | 9125 | A3 | | |
| 2104 | A2 | 2133 | A4 | 3142 | A4 | 3171 | C5 | 5112 | C4 | 5126 | B3 | 6120 | C4 | 9114 | B2 | 9126 | B5 | | |
| 2105 | A1 | 2135 | B5 | 3147 | B5 | 3172 | C5 | 5113 | B3 | 5127 | B4 | 7102 | A3 | 9115 | B3 | 9128 | A2 | | |

## ECO 5 TUNER BOARD / component side view


1
2
3
4
5
A
B
C
VCC2
VCC
RIGHT
GND
LEFT
ENABLE
DATA
STEREO
CLOCK
DATA
ENABLE
MPX
GND
FM 75 OHM
FM 300 OHM
SW
AM FRAME AERIAL
FM-RF
FM-OSC
VCO
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
MW-RF
LW-RF
AM-IF1
AM-AFC
AM-IF2
DISCRIMI-NATOR
SEARCH SENS.
Voltage multiplier board
VCC2
GND
VCC
AM-IF
GND
+FM
R-FM
L-FM
L out
R out
VCOkill
STSIG
STEREO
V+
Connector for AM - stereo Module
2SA...
BC...
B
C
E
E
B
C

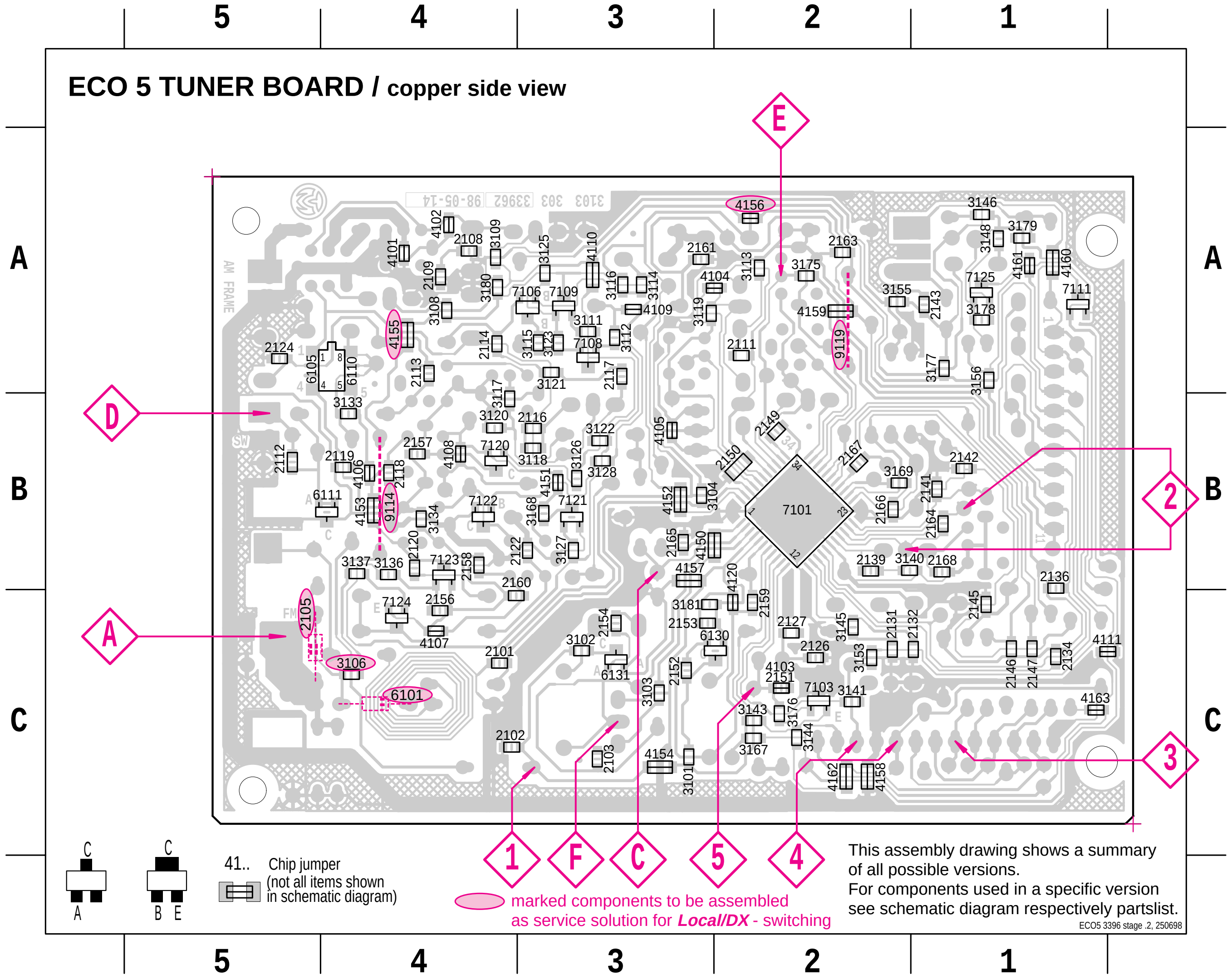
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

marked components to be assembled as service solution for *Local/DX* - switching

ECO5 3396 stage 2, 250698

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2101 | C4 | 2120 | B4 | 2145 | C1 | 2160 | C4 | 3108 | A4 | 3122 | B3 | 3144 | C2 | 3178 | A1 | 4110 | A3 | 4160 | A1 | 7109 | A3 |
| 2102 | C4 | 2122 | B3 | 2146 | C1 | 2161 | A3 | 3109 | A4 | 3123 | A3 | 3145 | C2 | 3179 | A1 | 4111 | C1 | 4161 | A1 | 7111 | A1 |
| 2103 | C3 | 2124 | A5 | 2147 | C1 | 2163 | A2 | 3111 | A3 | 3125 | A3 | 3146 | A1 | 3180 | A4 | 4120 | C2 | 4162 | C1 | 7120 | B4 |
| 2108 | A4 | 2126 | C2 | 2149 | B2 | 2164 | B1 | 3112 | A3 | 3126 | B3 | 3148 | A1 | 3181 | C3 | 4150 | B2 | 4163 | C1 | 7121 | B3 |
| 2109 | A4 | 2127 | C2 | 2150 | B2 | 2165 | B3 | 3113 | A2 | 3127 | B3 | 3153 | C2 | 4101 | A4 | 4151 | B3 | 6105 | A4 | 7122 | B4 |
| 2111 | A2 | 2131 | C2 | 2151 | C2 | 2166 | B2 | 3114 | A3 | 3128 | B3 | 3155 | A2 | 4102 | A4 | 4152 | B3 | 6110 | A4 | 7123 | B4 |
| 2112 | B5 | 2132 | C1 | 2152 | C3 | 2167 | B2 | 3115 | A3 | 3133 | B4 | 3156 | A1 | 4103 | C2 | 4153 | B4 | 6111 | B4 | 7124 | C4 |
| 2113 | A4 | 2134 | C1 | 2153 | C3 | 2168 | B 1 | 3116 | A3 | 3134 | B4 | 3167 | C2 | 4104 | A2 | 4154 | C3 | 6130 | C2 | 7125 | A1 |
| 2114 | A4 | 2136 | B1 | 2154 | C3 | 3101 | C3 | 3117 | B4 | 3136 | B4 | 3168 | B3 | 4105 | B3 | 4155 | A4 | 6131 | C3 | | |
| 2116 | B3 | 2139 | B2 | 2156 | C4 | 3102 | C3 | 3118 | B3 | 3137 | B4 | 3169 | B2 | 4106 | B4 | 4156 | A2 | 7101 | B2 | | |
| 2117 | A3 | 2141 | B1 | 2157 | B4 | 3103 | C3 | 3119 | A3 | 3140 | B2 | 3175 | A2 | 4107 | C4 | 4157 | B3 | 7103 | C2 | | |
| 2118 | B4 | 2142 | B1 | 2158 | B4 | 3104 | B3 | 3120 | B4 | 3141 | C2 | 3176 | C2 | 4108 | B4 | 4158 | C2 | 7106 | A3 | | |
| 2119 | B4 | 2143 | A1 | 2159 | C2 | 3106 | C4 | 3121 | A3 | 3143 | C2 | 3177 | A1 | 4109 | A3 | 4159 | A2 | 7108 | A3 | | |

## ECO 5 TUNER BOARD / copper side view


5
4
3
2
1
A
B
C
E
D
A
2
3
1
F
C
5
4
7101
C
A
C
B E
41..

41.. Chip jumper (not all items shown in schematic diagram)

marked components to be assembled as service solution for *Local/DX* - switching

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

ECO5 3396 stage 2, 250698

## *ELECTRICAL PARTSLIST TUNER ECO5*

### MISCELLANEOUS

| | | |
|---|---|---|
| 1101 | 4822 267 31505 | SOCKET 2P CLICKFIT |
| 1102 | 4822 267 10283 | SOCKET COAX, IEC 75Ω |
| 1103 | 4822 265 31184 | JST CONNECTOR 2 POLE |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2101 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2101 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2102 © | 4822 122 33177 | 10nF | 20% | 50V |
| 2103 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2104 | 4822 122 33195 | 100pF | 10% | 50V |
| 2106 | 4822 125 60101 | 3-11pF TRIMCAP | | |
| 2107 | 4822 121 51319 | 1µF | 20% | 50V |
| 2120 © | 5322 122 32658 | 22pF | 5% | 50V |
| 2125 | 4822 121 10673 | 560PF | 1% | 630V |
| 2126 © | 5322 122 31863 | 330pF | 5% | 50V |
| 2127 © | 4822 126 13473 | 220nF | 20% | 50V |
| 2128 | 4822 124 40248 | 10µF | 20% | 63V |
| 2129 | 4822 124 41584 | 100µF | 20% | 10V |
| 2130 | 4822 126 11585 | 22nF | 20% | 50V |
| 2131 © | 4822 126 13482 | 470nF | 20% | 16V |
| 2132 © | 4822 126 13482 | 470nF | 20% | 16V |
| 2133 | 4822 124 21913 | 1µF | 20% | 63V |
| 2134 © | 4822 126 13188 | 15nF | 5% | 63V |
| 2134 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2135 | 4822 124 40746 | 0,22µF | 20% | 63V |
| 2136 © | 4822 126 13188 | 15nF | 5% | 63V |
| 2136 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2137 | 4822 124 40746 | 0,22µF | 20% | 63V |
| 2138 | 4822 124 22652 | 2,2µF | 20% | 50V |
| 2139 © | 4822 126 14236 | 15pF | 5% | 50V |
| 2141 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2142 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2143 © | 4822 126 13473 | 220nF | 20% | 50V |
| 2144 | 4822 124 21913 | 1µF | 20% | 63V |
| 2145 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2146 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2147 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2148 | 4822 126 11585 | 22nF | 20% | 50V |
| 2149 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2150 © | 4822 122 33496 | 100nF | 10% | 63V |
| 2152 © | 4822 126 12105 | 33nF | 5% | 63V |
| 2153 © | 4822 126 13486 | 15pF | 2% | 63V |
| 2155 | 4822 125 60101 | 3-11pF TRIMCAP | | |
| 2159 © | 5322 122 32659 | 33pF | 5% | 50V |
| 2160 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2164 © | 4822 126 13482 | 470nF | 20% | 16V |
| 2165 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2166 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2167 © | 4822 122 33926 | 12pF | 5% | 50V |
| 2168 © | 4822 126 13695 | 82pF | 1% | 63V |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3101 © | 4822 051 20333 | 33kΩ | 5% | 0,1W |
| 3102 © | 4822 117 10837 | 100kΩ | 1% | 0,1W |
| 3103 © | 4822 117 10965 | 18kΩ | 2% | 0,1W |
| 3104 © | 4822 117 11448 | 180Ω | 10% | 0,1W |
| 3105 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3110 | 4822 116 52195 | 47Ω | 5% | 0,5W |
| 3120 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 3132 | 4822 116 52195 | 47Ω | 5% | 0,5W |
| 3134 © | 4822 051 20223 | 22kΩ | 5% | 0,1W |
| 3141 © | 4822 117 11148 | 56kΩ | 1% | 0,1W |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3142 | 4822 100 12159 | TRIMPOT. 100kΩ | | |
| 3145 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3146 © | 4822 051 20229 | 22Ω | 5% | 0,1W |
| 3152 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3153 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3154 | 4822 116 83868 | 150Ω | 5% | 0,5W |
| 3155 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3156 © | 4822 117 10837 | 100kΩ | 1% | 0,1W |
| 3158 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3159 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3160 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3161 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3167 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3169 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3170 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3171 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 4101 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4102 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4103 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4104 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4105 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4106 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4108 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4111 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4120 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4150 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4152 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4153 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4154 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4157 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4158 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4159 © | 4822 051 20008 | CHIP JUMPER 0805 | | |

### COILS

| | | |
|---|---|---|
| 5102 | 4822 157 71634 | RF-COIL MW |
| 5109 | 4822 242 70665 | FM-IF FILTER 10,7MHz |
| 5110 | 4822 242 70665 | FM-IF FILTER 10,7MHz |
| 5111 | 4822 158 60511 | AM-IF FILTER 450kHz |
| 5112 | 4822 157 70302 | AM-IF FILTER 450kHz |
| 5114 | 4822 157 70302 | AM-IF FILTER 450kHz |
| 5119 | 4822 157 11443 | DISCRIMINATOR COIL |
| 5121 | 4822 242 10261 | QUARTZ 75kHz |
| 5123 | 4822 157 60517 | RF-COIL AM |
| 5130 | 4822 157 11843 | RF COIL 1,5 TURNS |
| 5131 | 4822 157 11843 | RF COIL 1,5 TURNS |

### DIODES

| | | |
|---|---|---|
| 6103 | 4822 130 30621 | 1N4148 |
| 6104 | 4822 130 30621 | 1N4148 |
| 6105 © | 4822 130 83075 | HN1V02H |
| 6106 | 4822 130 30621 | 1N4148 |
| 6107 | 4822 130 34488 | BZX79-C11 |
| 6120 | 4822 130 30621 | 1N4148 |
| 6130 © | 4822 130 82833 | 1SV228 |
| 6131 © | 4822 130 82833 | 1SV228 |

### TRANSISTORS

| | | |
|---|---|---|
| 7102 | 4822 130 60093 | 2SA838B |
| 7111 © | 5322 130 42755 | BC847C |

### INTEGRATED CIRCUITS

| | | |
|---|---|---|
| 7101 © | 4822 209 90924 | TEA5757H/V1, RADIO IC |

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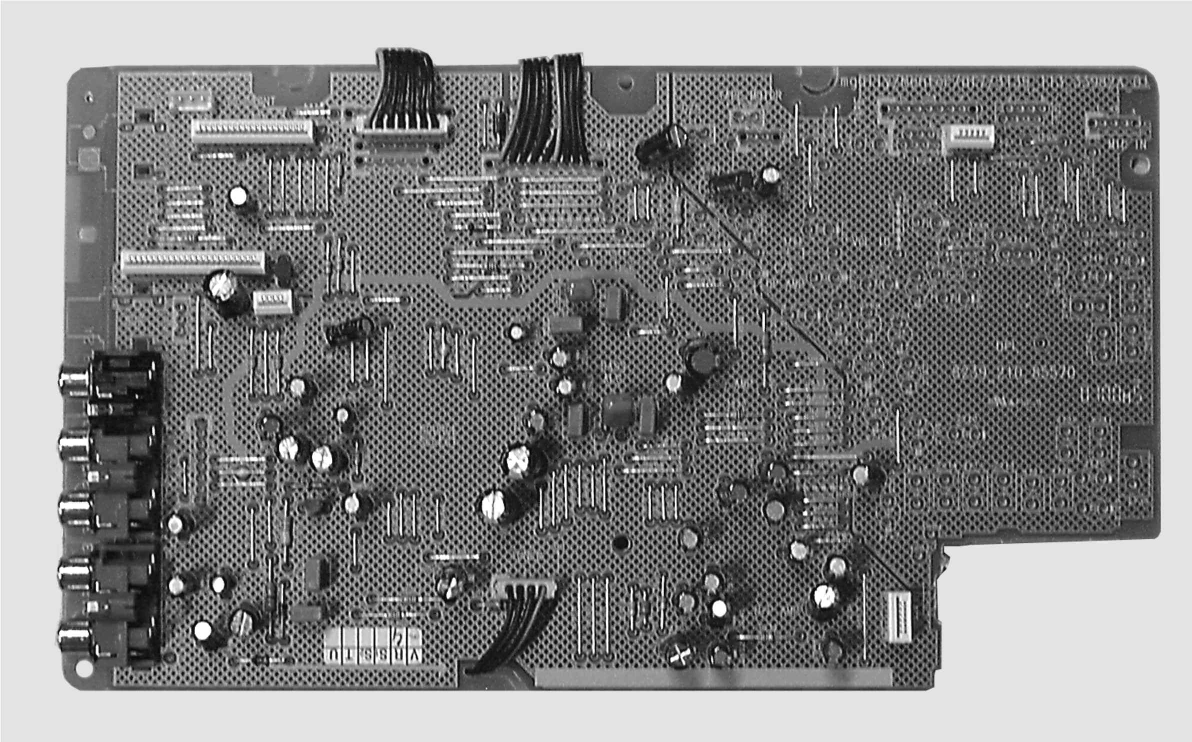
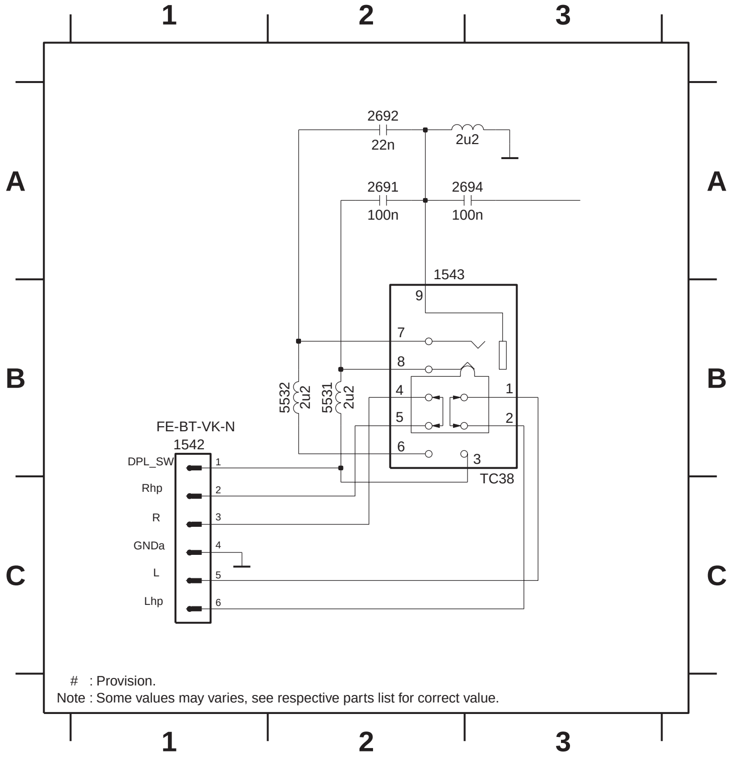
## *ELECTRICAL PARTSLIST TUNER ECO5*



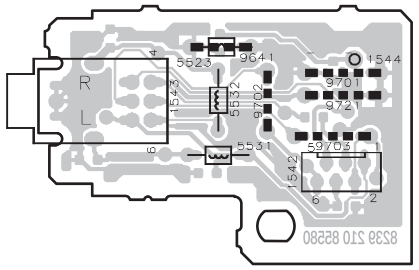
|  |  |  |  |  |  |
|---|---|---|---|---|---|
| 1542 B1 | 1544 A3 | 2692 A2 | 2694 A3 | 5523 A3 | 5532 B2 |
| 1543 A2 | 2691 A2 | 2693 A3 | 2695 A2 | 5531 B2 | 9641 A3 |


1
2
3
A
B
C
2692
22n
2u2
2691
100n
2694
100n
1543
9
7
8
4
5
6
1
2
3
TC38
5532
2u2
5531
2u2
FE-BT-VK-N
1542
DPL_SW
Rhp
R
GNDa
L
Lhp

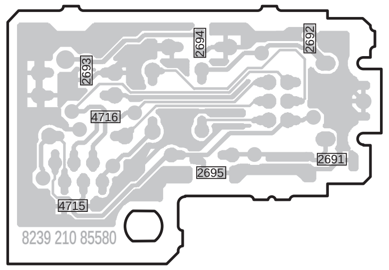
# : Provision.
Note : Some values may varies, see respective parts list for correct value.

## Headphone Board

Componentside view


R
L
5523
9641
1544
1543
5532
9702
9701
9721
5531
59703
1542
8239 210 85580

Copperside view


2693
2694
2692
4716
2691
2695
4715
8239 210 85580

# *AF7 Board*

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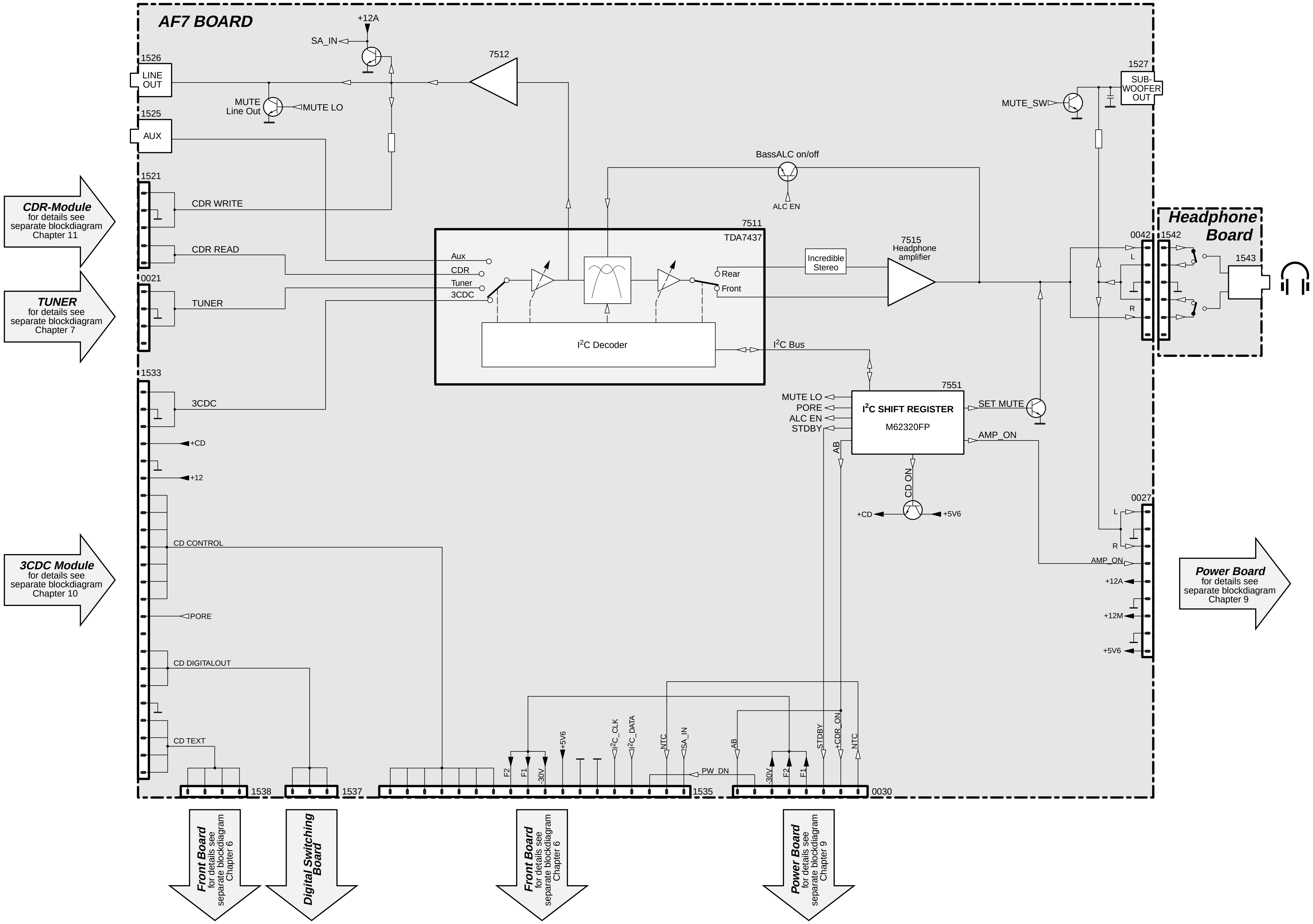
## Blockdiagram AF7 Board


AF7 BOARD
+12A
SA_IN
7512
1526
LINE OUT
MUTE Line Out
MUTE LO
1525
AUX
1527
SUB-WOOFER OUT
MUTE_SW
BassALC on/off
ALC EN
1521
CDR WRITE
CDR READ
0021
TUNER
1533
3CDC
+CD
+12
CD CONTROL
PORE
CD DIGITALOUT
CD TEXT
CDR-Module
for details see separate blockdiagram Chapter 11
TUNER
for details see separate blockdiagram Chapter 7
3CDC Module
for details see separate blockdiagram Chapter 10
7511
TDA7437
Aux
CDR
Tuner
3CDC
Rear
Front
I²C Decoder
I²C Bus
Incredible Stereo
7515
Headphone amplifier
Headphone Board
0042
1542
1543
L
R
7551
I²C SHIFT REGISTER
M62320FP
MUTE LO
PORE
ALC EN
STDBY
SET MUTE
AMP_ON
AB
CD ON
+CD
+5V6
0027
L
R
AMP_ON
+12A
+12M
+5V6
Power Board
for details see separate blockdiagram Chapter 9
F2
F1
-30V
+5V6
I²C_CLK
I²C_DATA
NTC
SA_IN
PW_DN
AB
-30V
F2
F1
STDBY
+CDR_ON
NTC
1538
1537
1535
0030
Front Board
for details see separate blockdiagram Chapter 6
Digital Switching Board
Front Board
for details see separate blockdiagram Chapter 6
Power Board
for details see separate blockdiagram Chapter 9

| | |
|---|---|
| 2501 | E2 |
| 2511 | C6 |
| 2512 | D7 |
| 2515 | D6 |
| 2516 | D7 |
| 2517 | D6 |
| 2519 | D6 |
| 2520 | D7 |
| 2523 | D6 |
| 2524 | D7 |
| 2525 | D9 |
| 2526 | E9 |
| 2527 | D9 |
| 2528 | E9 |
| 2529 | E9 |
| 2530 | B2 |
| 2531 | E7 |
| 2535 | D4 |
| 2536 | D4 |
| 2537 | D4 |
| 2538 | D4 |
| 2539 | D3 |
| 2543 | F9 |
| 2544 | F9 |
| 2545 | F9 |
| 2547 | E4 |
| 2548 | E4 |
| 2551 | A5 |
| 2553 | A5 |
| 2577 | D7 |
| 2578 | D7 |
| 2579 | E7 |
| 2580 | E7 |
| 2581 | D8 |
| 2595 | D5 |
| 2596 | C5 |
| 2597 | D5 |
| 2598 | C5 |
| 2601 | F8 |
| 2602 | E8 |
| 2603 | F7 |
| 2604 | F8 |
| 2605 | E7 |
| 2606 | F7 |
| 2607 | E7 |
| 2608 | F7 |
| 2611 | F7 |
| 2612 | F7 |
| 2613 | E7 |
| 2614 | F7 |
| 2615 | F7 |
| 2616 | F7 |
| 2617 | E7 |
| 2618 | F7 |
| 2623 | D6 |
| 2624 | D7 |
| 2625 | E4 |
| 2626 | D4 |
| 2633 | E3 |
| 2634 | F3 |
| 2635 | F3 |
| 2636 | F3 |
| 2637 | E4 |
| 2638 | F4 |
| 2639 | F4 |
| 2649 | E3 |
| 2650 | F2 |
| 2651 | B5 |
| 2652 | B5 |
| 2656 | B7 |
| 2657 | B7 |
| 2658 | E1 |
| 2662 | F9 |
| 2663 | F9 |
| 2668 | D9 |
| 2669 | D9 |
| 2670 | D7 |
| 2671 | D6 |
| 2672 | E6 |
| 2673 | D6 |
| 2674 | E6 |
| 2677 | D7 |
| 2678 | F9 |
| 2681 | B6 |
| 2682 | B8 |
| 2715 | D2 |
| 2716 | D2 |
| 2719 | D2 |
| 2720 | D1 |
| 2721 | D1 |
| 2722 | D1 |
| 2723 | D1 |
| 2724 | D1 |
| 2725 | D1 |
| 2726 | D1 |
| 2733 | D1 |
| 2734 | D1 |
| 2736 | B2 |
| 2737 | D1 |
| 2738 | D1 |
| 2739 | D1 |
| 2740 | D1 |
| 2741 | C1 |
| 2746 | C1 |
| 2747 | C1 |
| 2753 | C2 |
| 2754 | B1 |
| 2755 | B1 |
| 2759 | C2 |
| 2760 | C9 |
| 2761 | B1 |
| 2763 | C1 |
| 2764 | A4 |
| 2768 | D2 |
| 2775 | B3 |
| 2776 | C3 |
| 2777 | B4 |
| 2778 | C4 |
| 2781 | A5 |
| 2782 | C1 |
| 2783 | B1 |
| 2784 | C2 |
| 2785 | D1 |
| 2786 | D1 |
| 2787 | D1 |
| 2788 | D1 |
| 2789 | C2 |
| 2791 | A4 |
| 2792 | B2 |
| 2793 | B1 |
| 2794 | B1 |
| 2795 | B1 |
| 2796 | B2 |
| 2797 | B3 |
| 2798 | C3 |
| 2800 | D2 |
| 2865 | B9 |
| 2866 | B9 |
| 2867 | B9 |
| 2868 | E8 |
| 2869 | D5 |
| 2870 | E6 |
| 2871 | D6 |
| 2872 | E6 |
| 2873 | D6 |
| 2874 | E6 |
| 2875 | D8 |
| 2877 | B3 |
| 3511 | E6 |
| 3512 | E6 |
| 3515 | D8 |
| 3516 | D8 |
| 3517 | B3 |
| 3518 | B3 |
| 3519 | A4 |
| 3520 | A4 |
| 3521 | C7 |
| 3522 | D7 |
| 3523 | D9 |
| 3524 | E9 |
| 3525 | D9 |
| 3526 | E9 |
| 3527 | E9 |
| 3528 | F9 |
| 3529 | E4 |
| 3530 | E4 |
| 3531 | E4 |
| 3532 | D4 |
| 3534 | D4 |
| 3535 | E4 |
| 3536 | D4 |
| 3537 | E4 |
| 3538 | D4 |
| 3540 | C6 |
| 3541 | E4 |
| 3542 | D4 |
| 3543 | E4 |
| 3544 | D4 |
| 3545 | B2 |
| 3546 | B2 |
| 3547 | A2 |
| 3548 | A2 |
| 3549 | B3 |
| 3550 | C6 |
| 3551 | A5 |
| 3552 | A4 |
| 3553 | A5 |
| 3554 | B5 |
| 3555 | B5 |
| 3556 | B5 |
| 3557 | A5 |
| 3559 | E8 |
| 3560 | F8 |
| 3561 | C3 |
| 3562 | C3 |
| 3563 | E5 |
| 3564 | C7 |
| 3565 | D6 |
| 3566 | E6 |
| 3569 | C4 |
| 3570 | D4 |
| 3571 | D5 |
| 3572 | C5 |
| 3573 | D5 |
| 3574 | C5 |
| 3575 | E6 |
| 3577 | E8 |
| 3578 | E7 |
| 3580 | E8 |
| 3581 | E6 |
| 3582 | E6 |
| 3583 | D6 |
| 3584 | E6 |
| 3585 | D5 |
| 3586 | C5 |
| 3587 | D5 |
| 3588 | C5 |
| 3589 | D5 |
| 3590 | C5 |
| 3591 | D5 |
| 3592 | C5 |
| 3594 | F4 |
| 3595 | F8 |
| 3596 | F8 |
| 3597 | E8 |
| 3598 | F8 |
| 3601 | F8 |
| 3602 | E7 |
| 3603 | F7 |
| 3604 | F7 |
| 3605 | E7 |
| 3606 | F7 |
| 3609 | E7 |
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| 3611 | F8 |
| 3612 | F7 |
| 3613 | F7 |
| 3614 | F7 |
| 3615 | F7 |
| 3616 | F7 |
| 3617 | E7 |
| 3618 | F7 |
| 3619 | E7 |
| 3620 | F7 |
| 3621 | E7 |
| 3622 | F7 |
| 3623 | F7 |
| 3624 | F7 |
| 3625 | E6 |
| 3626 | F6 |
| 3627 | F6 |
| 3628 | F6 |
| 3629 | E6 |
| 3631 | E3 |
| 3633 | F4 |
| 3634 | F4 |
| 3635 | E3 |
| 3636 | F3 |
| 3637 | E3 |
| 3638 | F3 |
| 3639 | E4 |
| 3640 | F4 |
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| 3643 | F3 |
| 3645 | E3 |
| 3646 | F3 |
| 3647 | F3 |
| 3648 | F3 |
| 3649 | B5 |
| 3650 | B5 |
| 3651 | B5 |
| 3652 | B5 |
| 3653 | E2 |
| 3656 | B8 |
| 3657 | B8 |
| 3658 | B8 |
| 3659 | B8 |
| 3660 | B8 |
| 3662 | F3 |
| 3663 | F3 |
| 3665 | B6 |
| 3666 | B7 |
| 3667 | D6 |
| 3668 | D7 |
| 3671 | F8 |
| 3672 | F8 |
| 3673 | F8 |
| 3674 | F9 |
| 3675 | F9 |
| 3676 | F9 |
| 3677 | E9 |
| 3678 | E8 |
| 3679 | E9 |
| 3680 | E8 |
| 3682 | E9 |
| 3683 | D9 |
| 3684 | D9 |
| 3686 | E5 |
| 3687 | E6 |
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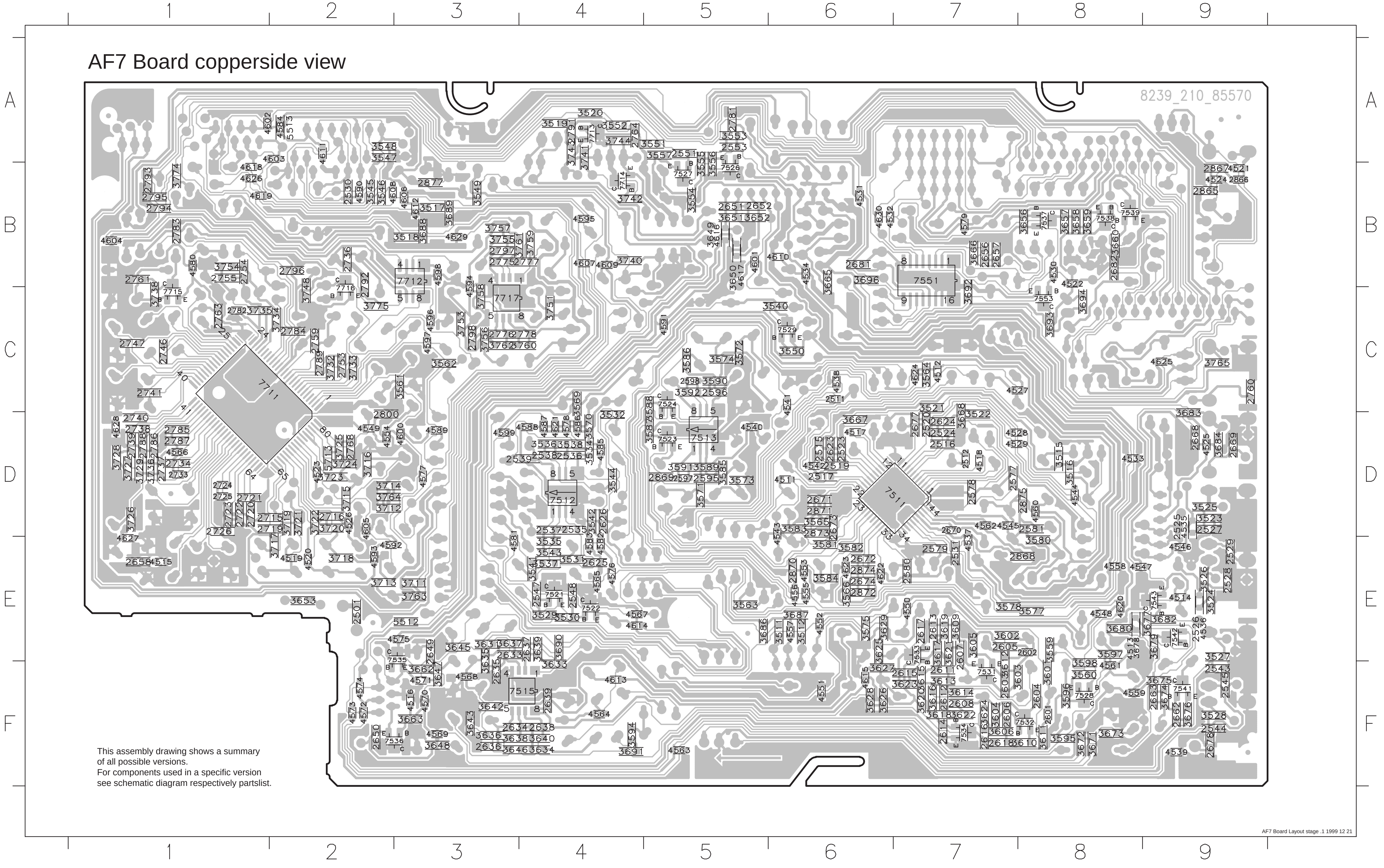
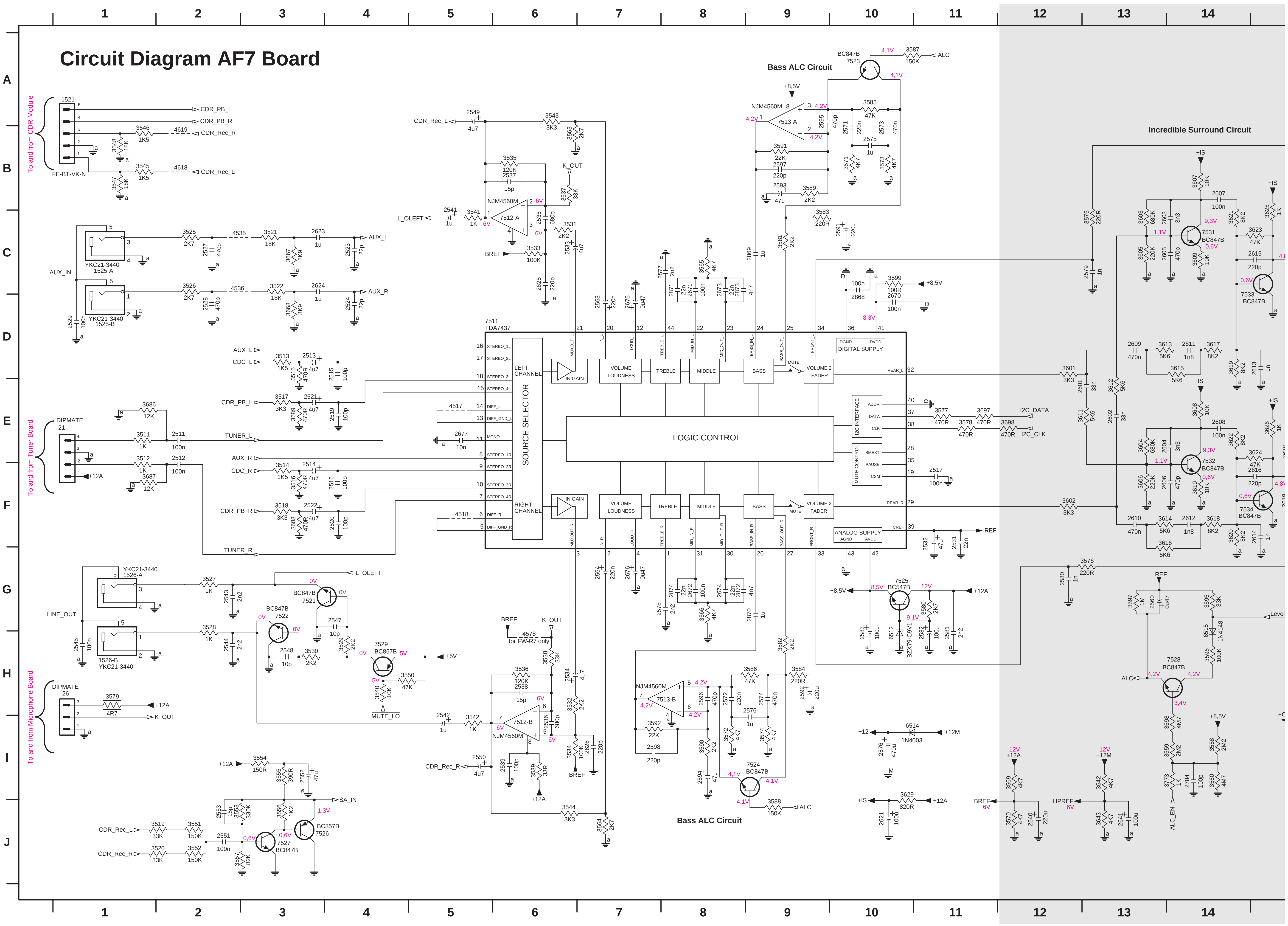
| 3689 | B3 |
| 3690 | E4 |
| 3691 | F4 |
| 3692 | C7 |
| 3693 | C8 |
| 3694 | C8 |
| 3696 | B6 |
| 3711 | E3 |
| 3712 | D2 |
| 3713 | E2 |
| 3714 | D2 |
| 3715 | D2 |
| 3716 | D2 |
| 3717 | E2 |
| 3718 | E2 |
| 3719 | D2 |
| 3720 | D2 |
| 3721 | D2 |
| 3722 | D2 |
| 3723 | D2 |
| 3724 | D2 |
| 3725 | D2 |
| 3726 | D1 |
| 3727 | D1 |
| 3728 | D1 |
| 3729 | D1 |
| 3732 | C2 |
| 3733 | C2 |
| 3734 | C2 |
| 3735 | C1 |
| 3736 | D1 |
| 3738 | C1 |
| 3740 | B4 |
| 3741 | A4 |
| 3742 | B4 |
| 3743 | A4 |
| 3744 | A4 |
| 3748 | C2 |
| 3751 | C4 |
| 3753 | C3 |
| 3754 | B1 |
| 3755 | B3 |
| 3756 | C3 |
| 3757 | B3 |
| 3758 | C3 |
| 3759 | B4 |
| 3760 | C4 |
| 3761 | B3 |
| 3762 | C3 |
| 3763 | E3 |
| 3764 | D2 |
| 3765 | C9 |
| 3774 | B1 |
| 3775 | C2 |
| 4511 | D6 |
| 4512 | C7 |
| 4513 | E8 |
| 4514 | E9 |
| 4515 | E1 |
| 4516 | F3 |
| 4517 | D6 |
| 4518 | D7 |
| 4519 | E2 |
| 4520 | E2 |
| 4521 | B9 |
| 4522 | B8 |
| 4523 | D2 |
| 4524 | B9 |
| 4525 | D9 |
| 4526 | D2 |
| 4527 | C7 |
| 4528 | D7 |
| 4529 | D7 |
| 4530 | B8 |
| 4531 | B6 |
| 4532 | B6 |
| 4533 | D8 |
| 4534 | B6 |
| 4535 | D9 |
| 4536 | E9 |
| 4537 | E7 |
| 4538 | C6 |
| 4539 | F9 |
| 4540 | D5 |
| 4541 | C6 |
| 4542 | D6 |
| 4543 | D6 |
| 4544 | D8 |
| 4545 | D7 |
| 4546 | E9 |
| 4547 | E8 |
| 4548 | E8 |
| 4549 | D2 |
| 4550 | E7 |
| 4551 | F6 |
| 4552 | E6 |
| 4553 | E6 |
| 4554 | D2 |
| 4555 | E6 |
| 4556 | E6 |
| 4557 | E6 |
| 4558 | E8 |
| 4559 | F8 |
| 4560 | D8 |
| 4561 | F8 |
| 4562 | D7 |
| 4563 | F5 |
| 4564 | F4 |
| 4565 | E4 |
| 4566 | D1 |
| 4567 | E4 |
| 4568 | F3 |
| 4569 | F3 |
| 4570 | F3 |
| 4571 | F3 |
| 4572 | F2 |
| 4573 | F2 |
| 4574 | F2 |
| 4575 | E3 |
| 4576 | E4 |
| 4577 | D3 |
| 4578 | D4 |
| 4579 | B7 |
| 4580 | B1 |
| 4581 | E3 |
| 4582 | E4 |
| 4583 | E4 |
| 4584 | A2 |
| 4585 | D4 |
| 4586 | D4 |
| 4587 | D4 |
| 4588 | D4 |
| 4589 | D3 |
| 4590 | B2 |
| 4591 | C5 |
| 4592 | E2 |
| 4593 | E2 |
| 4594 | B3 |
| 4595 | B4 |
| 4596 | C3 |
| 4597 | C3 |
| 4598 | B3 |
| 4599 | D3 |
| 4600 | D3 |
| 4601 | B5 |
| 4602 | A1 |
| 4603 | A2 |
| 4604 | B1 |
| 4605 | D2 |
| 4606 | B3 |
| 4607 | B4 |
| 4608 | B2 |
| 4609 | B4 |
| 4610 | B6 |
| 4611 | A2 |
| 4612 | B3 |
| 4613 | F4 |
| 4614 | E4 |
| 4615 | F6 |
| 4616 | B5 |
| 4617 | B5 |
| 4618 | B1 |
| 4619 | B1 |
| 4620 | E8 |
| 4621 | D4 |
| 4622 | E6 |
| 4623 | E6 |
| 4624 | C7 |
| 4625 | C9 |
| 4626 | B1 |
| 4627 | E1 |
| 4628 | D1 |
| 4629 | B3 |
| 4630 | B6 |
| 5512 | E3 |
| 5513 | A2 |
| 5713 | D2 |
| 7511 | D7 |
| 7512 | D4 |
| 7513 | D5 |
| 7515 | F4 |
| 7521 | E4 |
| 7522 | E4 |
| 7523 | D5 |
| 7524 | C5 |
| 7526 | B5 |
| 7527 | B5 |
| 7528 | F8 |
| 7529 | C6 |
| 7531 | F7 |
| 7532 | F8 |
| 7533 | E7 |
| 7534 | F7 |
| 7535 | E3 |
| 7536 | F2 |
| 7537 | B8 |
| 7538 | B8 |
| 7539 | B8 |
| 7541 | F9 |
| 7542 | E9 |
| 7543 | E9 |
| 7551 | B7 |
| 7553 | C8 |
| 7711 | C1 |
| 7712 | B3 |
| 7713 | A4 |
| 7714 | B4 |
| 7715 | C1 |
| 7716 | C2 |
| 7717 | C3 |

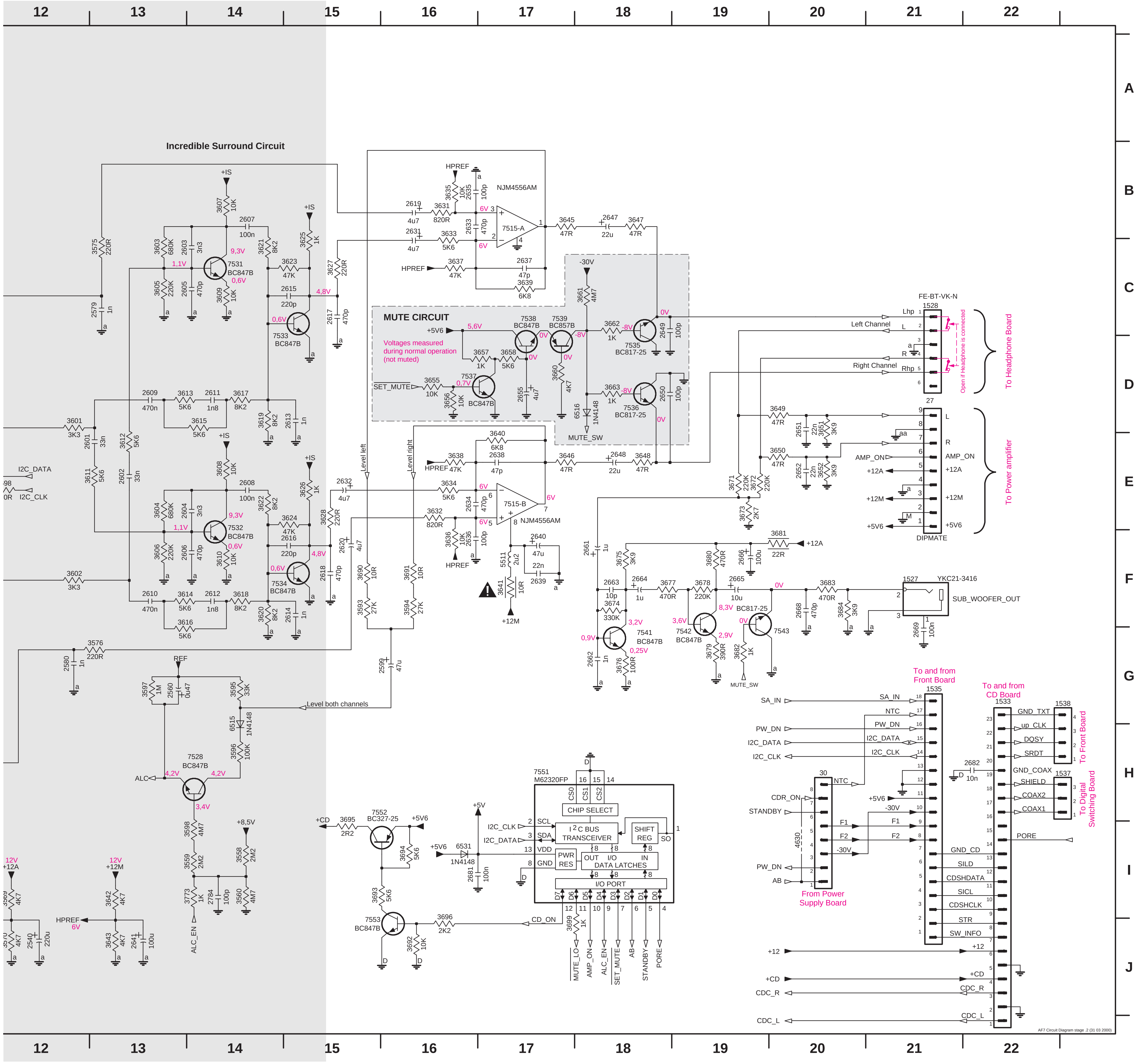
## AF7 Board copperside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

# Circuit Diagram AF7 Board

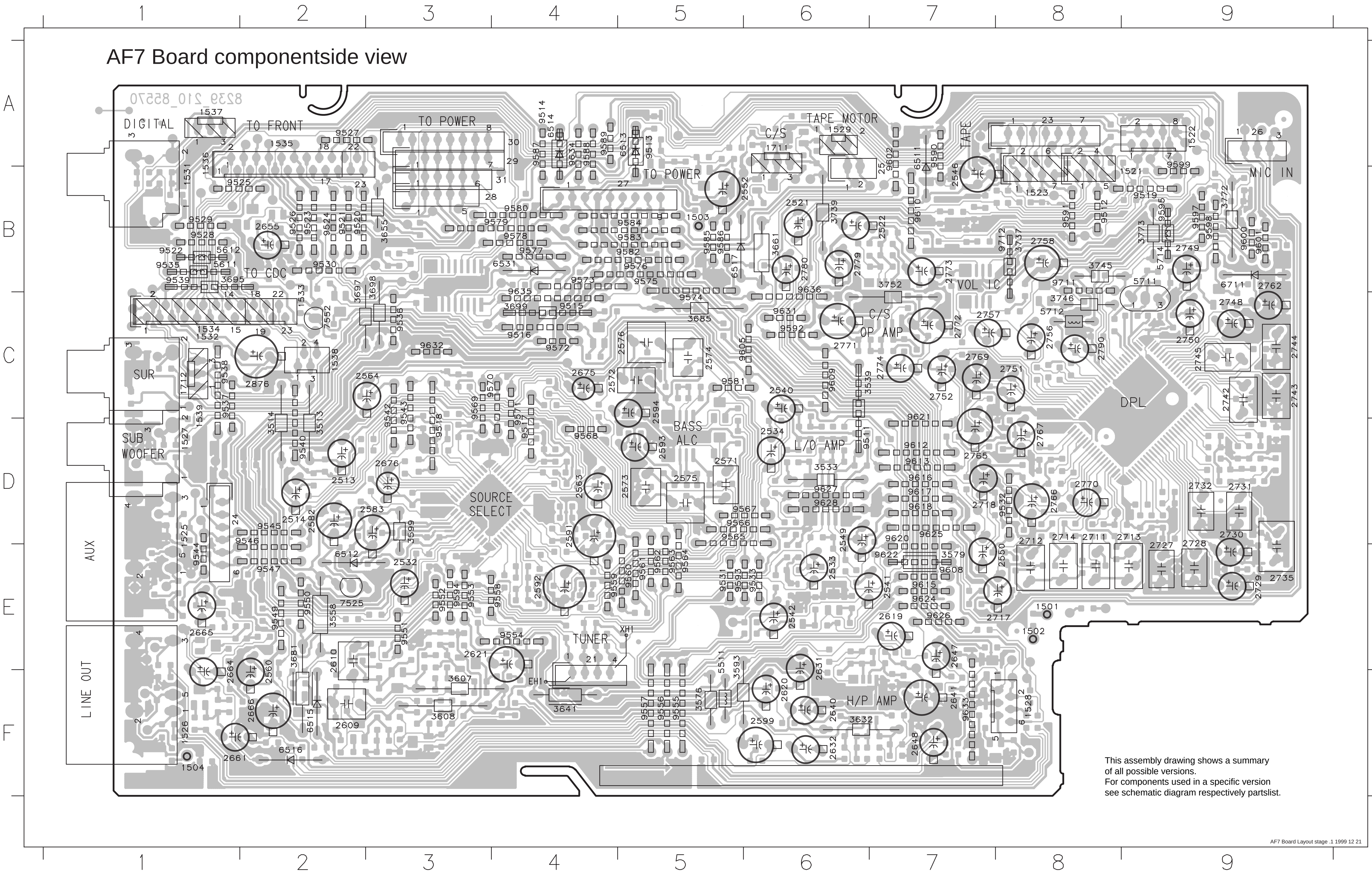

1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
Bass ALC Circuit
Incredible Surround Circuit
To and from CDR Module
1521
FE-BT-VK-N
CDR_PB_L
CDR_PB_R
CDR_Rec_R
CDR_Rec_L
4619
4618
AUX_IN
YKC21-3440 1525-A
YKC21-3440 1525-B
4535
4536
AUX_L
AUX_R
To and from Tuner Board
DIPMATE 21
TUNER_L
TUNER_R
+12A
LINE_OUT
YKC21-3440 1526-A
1526-B YKC21-3440
L_OLEFT
BC847B 7521
BC847B 7522
BC857B 7529
+5V
MUTE_LO
To and from Microphone Board
DIPMATE 26
K_OUT
SA_IN
BC857B 7526
7527 BC847B
CDR_Rec_L
CDR_Rec_R
NJM4560M 7512-A
7512-B NJM4560M
BREF
K_OUT
4578 for FW-R7 only
7511 TDA7437
SOURCE SELECTOR
LEFT CHANNEL
RIGHT-CHANNEL
IN GAIN
VOLUME LOUDNESS
TREBLE
MIDDLE
BASS
MUTE
VOLUME 2 FADER
DIGITAL SUPPLY
ANALOG SUPPLY
LOGIC CONTROL
I2C INTERFACE
ADDR
DATA
CLK
MUTE CONTROL
SMEXT
PAUSE
CSM
4517
4518
AUX_L
CDC_L
CDR_PB_L
AUX_R
CDC_R
CDR_PB_R
I2C_DATA
I2C_CLK
REF
NJM4560M 7513-A
7513-B NJM4560M
BC847B 7523
7524 BC847B
ALC
+8,5V
7525 BC547B
BZX79-C9V1
6512
+12A
+12
6514 1N4003
+12M
+IS
BC847B 7531
BC847B 7532
7533 BC847B
7534 BC847B
7528 BC847B
6515 1N4148
Level
ALC
ALC_EN
BREF
HPREF
REF


12
13
14
15
16
17
18
19
20
21
22
A
B
C
D
E
F
G
H
I
J
Incredible Surround Circuit
MUTE CIRCUIT
Voltages measured during normal operation (not muted)
NJM4556AM
7515-A
7515-B
7531 BC847B
7532 BC847B
7533 BC847B
7534 BC847B
7535 BC817-25
7536 BC817-25
7537 BC847B
7538 BC847B
7539 BC857B
7541 BC847B
7542 BC847B
7543 BC817-25
7528 BC847B
7552 BC327-25
7553 BC847B
7551 M62320FP
CHIP SELECT
I2C BUS TRANSCEIVER
SHIFT REG
PWR RES
OUT I/O IN DATA LATCHES
I/O PORT
SET_MUTE
MUTE_SW
Level left
Level right
Level both channels
HPREF
ALC
ALC_EN
I2C_DATA
I2C_CLK
FE-BT-VK-N
1528
Lhp
Left Channel
Right Channel
Rhp
Open if Headphone is connected
To Headphone Board
DIPMATE
AMP_ON
To Power amplifier
1527 YKC21-3416
SUB_WOOFER_OUT
To and from Front Board
1535
To and from CD Board
1533
1538
1537
To Front Board
To Digital Switching Board
From Power Supply Board
SA_IN
PW_DN
STANDBY
CDR_ON
AB
NTC
SW_INFO
SILD
CDSHDATA
SICL
CDSHCLK
STR
GND_CD
GND_TXT
up_CLK
DQSY
SRDT
GND_COAX
SHIELD
COAX2
COAX1
PORE
CD_ON
CDC_R
CDC_L
+CD
MUTE_LO
AMP_ON
SET_MUTE
STANDBY
AF7 Circuit Diagram stage 2 (31 03 2000)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0021 | E1 | 2617 | C15 | 3552 | J2 | 3651 | E20 |
| 0026 | H1 | 2618 | F15 | 3553 | J3 | 3652 | E20 |
| 0027 | D21 | 2619 | B16 | 3554 | I3 | 3655 | D16 |
| 0030 | H20 | 2620 | F15 | 3555 | I3 | 3656 | D16 |
| 1521 | A1 | 2621 | J10 | 3556 | J3 | 3657 | D17 |
| 1525 | C1 | 2623 | C3 | 3557 | J3 | 3658 | D17 |
| 1526 | H1 | 2624 | C3 | 3558 | I14 | 3660 | D17 |
| 1527 | F21 | 2625 | C6 | 3559 | I14 | 3661 | C18 |
| 1528 | C21 | 2626 | I7 | 3560 | I14 | 3662 | D18 |
| 1533 | G22 | 2631 | C16 | 3563 | B6 | 3663 | D18 |
| 1535 | G21 | 2632 | E15 | 3564 | J7 | 3667 | C3 |
| 1537 | H22 | 2633 | C16 | 3565 | C8 | 3668 | C3 |
| 1538 | G22 | 2634 | E16 | 3566 | G8 | 3671 | E19 |
| 2216 | F15 | 2635 | B16 | 3569 | I12 | 3672 | E19 |
| 2355 | D17 | 2636 | F16 | 3570 | J12 | 3673 | E19 |
| 2511 | E2 | 2637 | C17 | 3571 | B10 | 3674 | F18 |
| 2512 | E2 | 2638 | E17 | 3572 | I8 | 3675 | F18 |
| 2513 | D3 | 2639 | F17 | 3573 | B10 | 3676 | G18 |
| 2514 | F3 | 2640 | F17 | 3574 | I9 | 3677 | F18 |
| 2515 | D4 | 2641 | J13 | 3575 | C13 | 3678 | F19 |
| 2516 | F4 | 2647 | B18 | 3576 | G13 | 3679 | G19 |
| 2517 | F11 | 2648 | E18 | 3577 | E11 | 3680 | F19 |
| 2519 | E4 | 2649 | D18 | 3578 | E11 | 3681 | F20 |
| 2520 | F4 | 2650 | D18 | 3579 | H1 | 3682 | G19 |
| 2521 | E3 | 2651 | E20 | 3580 | G11 | 3683 | F20 |
| 2522 | F3 | 2652 | E20 | 3581 | C9 | 3684 | F20 |
| 2523 | C4 | 2661 | F18 | 3582 | H9 | 3686 | E1 |
| 2524 | C4 | 2662 | G18 | 3583 | C9 | 3687 | F1 |
| 2527 | C2 | 2663 | F18 | 3584 | H9 | 3688 | F3 |
| 2528 | D2 | 2664 | F18 | 3585 | A10 | 3689 | E3 |
| 2531 | G11 | 2665 | F19 | 3586 | H9 | 3690 | F15 |
| 2532 | G11 | 2666 | F19 | 3587 | A10 | 3691 | F16 |
| 2533 | C6 | 2668 | F20 | 3588 | J9 | 3692 | J16 |
| 2534 | H6 | 2669 | G21 | 3589 | B9 | 3693 | I15 |
| 2535 | C6 | 2670 | D10 | 3590 | I8 | 3694 | I16 |
| 2536 | I6 | 2671 | C8 | 3591 | B9 | 3695 | I15 |
| 2537 | B6 | 2672 | G8 | 3592 | I7 | 3696 | J16 |
| 2539 | I6 | 2673 | C8 | 3593 | F15 | 3697 | E11 |
| 2540 | J12 | 2674 | G8 | 3594 | F16 | 3698 | E12 |
| 2541 | C5 | 2675 | D7 | 3595 | G14 | 3699 | J17 |
| 2542 | I5 | 2676 | G7 | 3596 | H14 | 3773 | I14 |
| 2543 | G2 | 2677 | E5 | 3597 | G13 | 3929 | J10 |
| 2544 | H2 | 2681 | I16 | 3598 | I14 | 4517 | E5 |
| 2545 | H1 | 2682 | H22 | 3599 | C10 | 4518 | F5 |
| 2547 | G4 | 2784 | I14 | 3601 | D12 | 4535 | C2 |
| 2548 | H3 | 2868 | C10 | 3602 | F12 | 4536 | C2 |
| 2549 | A5 | 2869 | C9 | 3603 | C13 | 4578 | H6 |
| 2550 | I5 | 2870 | G9 | 3604 | E13 | 4618 | B2 |
| 2551 | J2 | 2871 | C8 | 3605 | C13 | 4619 | B2 |
| 2552 | I3 | 2872 | G8 | 3606 | F13 | 4630 | I20 |
| 2553 | J2 | 2873 | C8 | 3607 | B14 | 5511 | F17 |
| 2560 | G13 | 2874 | G8 | 3608 | E14 | 5734 | F15 |
| 2563 | D7 | 2876 | I10 | 3609 | C14 | 6512 | H10 |
| 2564 | G7 | 3511 | E1 | 3610 | F14 | 6514 | I10 |
| 2571 | B10 | 3512 | E1 | 3611 | E13 | 6515 | H14 |
| 2572 | H8 | 3513 | D3 | 3612 | E13 | 6516 | D18 |
| 2573 | B10 | 3514 | F3 | 3613 | D13 | 6531 | I16 |
| 2574 | H9 | 3515 | D3 | 3614 | F13 | 7511 | D6 |
| 2575 | B10 | 3516 | F3 | 3615 | D14 | 7512-A | C6 |
| 2576 | H9 | 3517 | E3 | 3616 | G13 | 7512-B | I6 |
| 2577 | C8 | 3518 | F3 | 3617 | D14 | 7513-A | A9 |
| 2578 | G8 | 3519 | J1 | 3618 | F14 | 7513-B | H8 |
| 2579 | C13 | 3520 | J1 | 3619 | D14 | 7515-A | B17 |
| 2580 | G12 | 3521 | C3 | 3620 | F14 | 7515-B | E17 |
| 2581 | H11 | 3522 | C3 | 3621 | C14 | 7521 | G3 |
| 2582 | H11 | 3525 | C2 | 3622 | E14 | 7522 | H3 |
| 2583 | H10 | 3526 | C2 | 3623 | C15 | 7523 | A10 |
| 2591 | C10 | 3527 | G2 | 3624 | E15 | 7524 | I9 |
| 2592 | H9 | 3528 | H2 | 3625 | C15 | 7525 | G10 |
| 2593 | B9 | 3529 | H4 | 3626 | E15 | 7526 | J3 |
| 2594 | I8 | 3530 | H3 | 3627 | C15 | 7527 | J3 |
| 2595 | A9 | 3531 | C6 | 3628 | E15 | 7528 | H14 |
| 2596 | H8 | 3532 | H6 | 3631 | B16 | 7529 | H4 |
| 2597 | B9 | 3533 | C6 | 3632 | E16 | 7531 | C14 |
| 2598 | I7 | 3534 | I6 | 3633 | C16 | 7532 | F14 |
| 2599 | G16 | 3535 | B6 | 3634 | E16 | 7533 | D15 |
| 2601 | E13 | 3536 | H6 | 3635 | B16 | 7535 | D18 |
| 2602 | E13 | 3537 | B6 | 3636 | F16 | 7536 | D18 |
| 2603 | C14 | 3538 | H6 | 3637 | C16 | 7537 | D17 |
| 2604 | E14 | 3539 | I6 | 3638 | E16 | 7538 | D17 |
| 2605 | C14 | 3540 | H4 | 3639 | C17 | 7539 | D17 |
| 2606 | F14 | 3541 | C5 | 3640 | E17 | 7541 | G18 |
| 2607 | B14 | 3542 | I5 | 3641 | F17 | 7542 | F19 |
| 2608 | E14 | 3543 | A6 | 3642 | I13 | 7543 | F19 |
| 2609 | D13 | 3544 | J6 | 3643 | J13 | 7551 | H17 |
| 2610 | F13 | 3545 | B1 | 3645 | B17 | 7552 | I15 |
| 2611 | D14 | 3546 | B1 | 3646 | E17 | 7553 | J16 |
| 2612 | F14 | 3547 | B1 | 3647 | B18 | | |
| 2613 | D15 | 3548 | B1 | 3648 | E18 | | |
| 2614 | F15 | 3550 | H4 | 3649 | D20 | | |
| 2615 | C15 | 3551 | J2 | 3650 | E20 | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | E4 | 1504 | F1 | 1535 | A2 | 2534 | D6 | 2573 | D5 | 2619 | E7 | 2666 | F2 | 2731 | D9 | 2757 | C7 | 2780 | B6 | 3608 | F3 | 3745 | B8 | 6513 | A5 | 9515 | C4 | 9528 | B1 | 9543 | C3 | 9557 | F5 | 9570 | C4 | 9583 | B5 | 9597 | B9 | 9616 | D7 | 9633 | F7 |
| 23 | A8 | 1521 | B8 | 1536 | A2 | 2540 | C6 | 2574 | C5 | 2620 | F6 | 2675 | C4 | 2732 | D9 | 2758 | B8 | 2790 | C8 | 3632 | F6 | 3746 | C8 | 6514 | A4 | 9516 | C4 | 9529 | B1 | 9544 | E1 | 9558 | E4 | 9571 | C4 | 9584 | B5 | 9598 | B9 | 9617 | D7 | 9634 | A4 |
| 24 | D1 | 1522 | A9 | 1537 | A1 | 2541 | E7 | 2575 | D5 | 2621 | E4 | 2676 | D3 | 2735 | E9 | 2762 | B9 | 2876 | C2 | 3641 | F4 | 3752 | C7 | 6515 | F2 | 9517 | D4 | 9530 | B2 | 9545 | D2 | 9559 | E4 | 9572 | C4 | 9585 | B5 | 9599 | B9 | 9618 | D7 | 9635 | C4 |
| 25 | A6 | 1523 | B8 | 1538 | C2 | 2542 | E6 | 2576 | C5 | 2631 | E6 | 2711 | E8 | 2742 | C9 | 2765 | D8 | 3513 | D2 | 3655 | B3 | 3772 | B9 | 6516 | F2 | 9518 | D3 | 9531 | E5 | 9546 | D2 | 9560 | E5 | 9573 | B4 | 9586 | B5 | 9600 | B9 | 9620 | E7 | 9636 | C6 |
| 26 | A9 | 1525 | E1 | 1539 | C1 | 2546 | A7 | 2582 | D2 | 2632 | F6 | 2712 | E8 | 2743 | C9 | 2766 | D8 | 3514 | D2 | 3661 | B6 | 3773 | B9 | 6517 | B5 | 9519 | B9 | 9532 | D8 | 9547 | E2 | 9561 | E5 | 9574 | C5 | 9587 | A4 | 9601 | B9 | 9621 | D7 | 9711 | C8 |
| 27 | B4 | 1526 | F1 | 1711 | A6 | 2549 | D7 | 2583 | D3 | 2640 | F6 | 2713 | E9 | 2744 | C9 | 2767 | D8 | 3533 | D6 | 3681 | F2 | 5511 | F5 | 6531 | B4 | 9520 | B2 | 9533 | E6 | 9549 | E2 | 9562 | E5 | 9575 | B5 | 9588 | A4 | 9602 | A7 | 9622 | E7 | 9712 | B8 |
| 28 | B3 | 1527 | D1 | 1712 | C1 | 2550 | E8 | 2591 | D5 | 2641 | F7 | 2714 | E8 | 2745 | C9 | 2769 | C7 | 3539 | C6 | 3685 | C5 | 5611 | B1 | 6711 | B9 | 9521 | B2 | 9535 | B1 | 9550 | E2 | 9563 | E5 | 9576 | B5 | 9589 | A4 | 9605 | C6 | 9624 | E7 | | |
| 29 | A3 | 1528 | F8 | 2513 | D2 | 2552 | B6 | 2592 | E4 | 2647 | E7 | 2717 | E8 | 2748 | C9 | 2770 | D8 | 3558 | E2 | 3695 | B1 | 5612 | B1 | 7525 | E2 | 9522 | B1 | 9536 | C3 | 9551 | E3 | 9564 | E5 | 9577 | B4 | 9590 | A7 | 9608 | E7 | 9625 | D7 | | |
| 30 | A3 | 1529 | A6 | 2514 | D2 | 2560 | F2 | 2593 | D5 | 2648 | F7 | 2718 | D8 | 2749 | B9 | 2771 | C6 | 3576 | F5 | 3697 | C2 | 5711 | B9 | 7552 | C2 | 9523 | B2 | 9537 | C1 | 9552 | E3 | 9565 | D5 | 9578 | B4 | 9591 | B8 | 9609 | C6 | 9626 | E7 | | |
| 31 | A3 | 1531 | B1 | 2521 | B6 | 2563 | D4 | 2594 | C5 | 2655 | B2 | 2727 | E9 | 2750 | C9 | 2772 | C7 | 3579 | E7 | 3698 | C3 | 5712 | C8 | 9511 | C6 | 9524 | B2 | 9538 | C1 | 9553 | E3 | 9566 | D5 | 9579 | B4 | 9592 | C6 | 9610 | B7 | 9627 | D6 | | |
| 1501 | E8 | 1532 | C1 | 2522 | B6 | 2564 | C3 | 2599 | F6 | 2661 | F1 | 2728 | E9 | 2751 | C8 | 2773 | B7 | 3593 | F5 | 3699 | C4 | 5714 | B9 | 9512 | B8 | 9525 | B1 | 9539 | B1 | 9554 | E4 | 9567 | D6 | 9580 | B4 | 9593 | E5 | 9612 | D7 | 9628 | D6 | | |
| 1502 | E8 | 1533 | C1 | 2532 | E3 | 2571 | D5 | 2609 | F2 | 2664 | E1 | 2729 | E9 | 2752 | C7 | 2774 | C7 | 3599 | D3 | 3737 | B8 | 6511 | B7 | 9513 | A5 | 9526 | B2 | 9540 | D2 | 9555 | F5 | 9568 | D4 | 9581 | C5 | 9594 | E3 | 9613 | D7 | 9631 | C6 | | |
| 1503 | B5 | 1534 | C1 | 2533 | E6 | 2572 | C5 | 2610 | E3 | 2665 | E1 | 2730 | D9 | 2756 | C8 | 2779 | B6 | 3607 | F3 | 3739 | B6 | 6512 | E2 | 9514 | A4 | 9527 | A2 | 9542 | C3 | 9556 | F5 | 9569 | C3 | 9582 | B5 | 9595 | B9 | 9615 | E7 | 9632 | C3 | | |

# AF7 Board componentside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

AF7 Board Layout stage .1 1999 12 21

## *ELECTRICAL PARTSLIST AF7 BOARD*

### MISCELLANEOUS

| | | |
|---|---|---|
| 1521 | 4822 267 10954 | FFC SOCKET, 5P |
| 1525 | 4822 267 20452 | CINCH SOCKET 2P |
| 1526 | 4822 267 20452 | CINCH SOCKET 2P |
| 1527 | 4822 267 31729 | CINCH SOCKET, 1P |
| 1528 | 4822 267 10731 | FFC SOCKET, 6P |
| 1533 | 4822 267 10757 | FFC SOCKET, 23P, TOP ENTRY |
| 1535 | 4822 265 11553 | FFC SOCKET, 19P |
| 1538 | 4822 267 10733 | FFC SOCKET, 4P |
| 1542 | 4822 267 10731 | FFC SOCKET, 6P |
| 1543 | 4822 265 11529 | HEADPHONE SOCKET |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2501 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2511 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2512 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2513 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2514 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2515 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2516 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2517 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2519 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2520 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2521 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2522 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2523 © | 5322 122 32658 | 22pF | 5% | 50V |
| 2524 © | 5322 122 32658 | 22pF | 5% | 50V |
| 2527 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2528 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2529 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2531 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2532 | 4822 124 40433 | 47µF | 20% | 25V |
| 2533 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2534 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2535 © | 4822 122 32535 | 680pF | | |
| 2536 © | 4822 122 32535 | 680pF | | |
| 2537 © | 4822 126 13486 | 15pF | 2% | 63V |
| 2538 © | 4822 126 13486 | 15pF | 2% | 63V |
| 2539 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2540 | 4822 124 12245 | 220µF | 20% | 16V |
| 2541 | 4822 124 21913 | 1µF | 20% | 63V |
| 2542 | 4822 124 21913 | 1µF | 20% | 63V |
| 2543 © | 4822 122 33127 | 2,2nF | 10% | 63V |
| 2544 © | 4822 122 33127 | 2,2nF | 10% | 63V |
| 2545 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2547 © | 5322 122 32448 | 10pF | 5% | 50V |
| 2548 © | 5322 122 32448 | 10pF | 5% | 50V |
| 2549 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2550 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2551 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2552 | 4822 124 41751 | 47µF | 20% | 16V |
| 2553 © | 4822 126 13486 | 15pF | 2% | 63V |
| 2560 | 5322 124 41948 | 0,47µF | 20% | 50V |
| 2563 | 4822 124 40746 | 0,22µF | 20% | 63V |
| 2564 | 4822 124 40746 | 0,22µF | 20% | 63V |
| 2571 | 4822 121 42408 | 220nF | 5% | 63V |
| 2572 | 4822 121 42408 | 220nF | 5% | 63V |
| 2573 | 4822 121 51252 | 470nF | 5% | 63V |
| 2574 | 4822 121 51252 | 470nF | 5% | 63V |
| 2575 | 4822 121 51319 | 1µF | 20% | 50V |
| 2576 | 4822 121 51319 | 1µF | 20% | 50V |
| 2577 © | 4822 122 33127 | 2,2nF | 10% | 63V |
| 2578 © | 4822 122 33127 | 2,2nF | 10% | 63V |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2579 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2580 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2581 © | 4822 122 33127 | 2,2nF | 10% | 63V |
| 2582 | 4822 124 40207 | 100µF | 20% | 25V |
| 2583 | 4822 124 40207 | 100µF | 20% | 25V |
| 2591 | 4822 124 80144 | 220µF | 20% | 25V |
| 2592 | 4822 124 80144 | 220µF | 20% | 25V |
| 2593 | 4822 124 40433 | 47µF | 20% | 25V |
| 2594 | 4822 124 40433 | 47µF | 20% | 25V |
| 2595 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2596 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2597 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2598 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2599 | 4822 124 41751 | 47µF | 20% | 16V |
| 2601 © | 4822 126 12105 | 33nF | 5% | 63V |
| 2602 © | 4822 126 12105 | 33nF | 5% | 63V |
| 2603 © | 4822 122 33891 | 3,3nF | 10% | 63V |
| 2604 © | 4822 122 33891 | 3,3nF | 10% | 63V |
| 2605 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2606 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2607 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2608 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2609 | 4822 121 51252 | 470nF | 5% | 63V |
| 2610 | 4822 121 51252 | 470nF | 5% | 63V |
| 2611 © | 4822 126 10847 | 1,8nF | 10% | 50V |
| 2612 © | 4822 126 10847 | 1,8nF | 10% | 50V |
| 2613 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2614 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2615 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2616 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2617 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2618 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2619 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2620 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2621 | 4822 124 40207 | 100µF | 20% | 25V |
| 2623 © | 4822 126 14043 | 1µF | 20% | 16V |
| 2624 © | 4822 126 14043 | 1µF | 20% | 16V |
| 2625 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2626 © | 4822 122 33575 | 220pF | 5% | 50V |
| 2631 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2632 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2633 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2634 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2635 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2636 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2637 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2638 © | 4822 126 13692 | 47pF | 1% | 63V |
| 2639 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2640 | 4822 124 40433 | 47µF | 20% | 25V |
| 2641 | 4822 124 40207 | 100µF | 20% | 25V |
| 2647 | 4822 124 81151 | 22µF | 20% | 50V |
| 2648 | 4822 124 81151 | 22µF | 20% | 50V |
| 2649 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2650 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2651 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2652 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2655 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2661 | 4822 124 21913 | 1µF | 20% | 63V |
| 2662 © | 5322 122 31647 | 1nF | 10% | 63V |
| 2663 © | 5322 122 32448 | 10pF | 5% | 50V |

## *ELECTRICAL PARTSLIST AF7 BOARD*

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2664 | 4822 124 21913 | 1µF | 20% | 63V |
| 2665 | 4822 124 40248 | 10µF | 20% | 63V |
| 2666 | 4822 124 40207 | 100µF | 20% | 25V |
| 2668 © | 5322 122 34099 | 470pF | 10% | 63V |
| 2669 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2670 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2671 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2672 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2673 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2674 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2675 | 5322 124 41948 | 0,47µF | 20% | 50V |
| 2676 | 5322 124 41948 | 0,47µF | 20% | 50V |
| 2677 © | 5322 122 34098 | 10nF | 10% | 50V |
| 2681 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2682 © | 5322 122 34098 | 10nF10%50V | | |
| 2691 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2692 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2694 © | 4822 126 13838 | 100nF | 10% | 50V |
| 2781 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2784 © | 5322 122 32531 | 100pF | 5% | 50V |
| 2868 © | 4822 126 14585 | 100nF | 10% | 50V |
| 2869 © | 4822 126 14043 | 1µF | 20% | 16V |
| 2870 © | 4822 126 14043 | 1µF | 20% | 16V |
| 2871 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2872 © | 5322 126 10223 | 4,7nF | 10% | 63V |
| 2873 © | 5322 126 10223 | 4,7nF | 10% | 63V |
| 2874 © | 5322 122 32654 | 22nF | 10% | 63V |
| 2876 | 4822 124 80791 | 470µF | 20% | 16V |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3511 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3512 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3513 | 4822 116 52243 | 1,5kΩ | 5% | 0,16W |
| 3514 | 4822 116 52243 | 1,5kΩ | 5% | 0,16W |
| 3515 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3516 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3517 © | 4822 051 20332 | 3,3kΩ | 5% | 0,1W |
| 3518 © | 4822 051 20332 | 3,3kΩ | 5% | 0,1W |
| 3519 © | 4822 051 20333 | 33kΩ | 5% | 0,1W |
| 3520 © | 4822 051 20333 | 33kΩ | 5% | 0,1W |
| 3521 © | 4822 117 10965 | 18kΩ | 2% | 0,1W |
| 3522 © | 4822 117 10965 | 18kΩ | 2% | 0,1W |
| 3525 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3526 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3527 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3528 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3529 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3530 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3531 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3532 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3533 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3534 © | 4822 117 10837 | 100kΩ | 1% | 0,1W |
| 3535 © | 4822 051 20124 | 120kΩ | 5% | 0,1W |
| 3536 © | 4822 051 20124 | 120kΩ | 5% | 0,1W |
| 3537 © | 4822 051 20333 | 33kΩ | 5% | 0,1W |
| 3538 © | 4822 051 20333 | 33kΩ | 5% | 0,1W |
| 3539 | 4822 052 10339 | 33Ω | 5% | NFR |
| 3540 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3541 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3542 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3543 © | 4822 051 20332 | 3,3kΩ | 5% | 0,1W |
| 3544 © | 4822 051 20332 | 3,3kΩ | 5% | 0,1W |
| 3545 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3546 © | 4822 117 11139 | 1,5kΩ | 1% | 0,1W |
| 3547 © | 4822 117 10965 | 18kΩ | 2% | 0,1W |
| 3548 © | 4822 117 10965 | 18kΩ | 2% | 0,1W |
| 3550 © | 4822 117 10834 | 47kΩ | 1% | 0,1W |
| 3551 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3552 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3553 © | 4822 051 20334 | 330kΩ | 5% | 0,1W |
| 3554 © | 4822 117 10353 | 150Ω | 5% | 0,1W |
| 3555 © | 4822 051 20391 | 390Ω | 5% | 0,1W |
| 3556 © | 4822 051 20122 | 1,2kΩ | 5% | 0,1W |
| 3557 © | 4822 117 11149 | 82kΩ | 1% | 0,1W |
| 3558 | 4822 053 20225 | 2,2MΩ | 5% | 0,25W |
| 3559 © | 4822 051 20225 | 2,2MΩ | 5% | 0,1W |
| 3560 © | 4822 051 20475 | 4,7MΩ | 5% | 0,1W |
| 3563 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3564 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3565 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3566 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3569 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3570 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3571 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3572 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3573 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3574 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3575 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3576 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3577 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3578 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3579 | 4822 052 10478 | 4,7Ω | 5% | NFR |
| 3580 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3581 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3582 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3583 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3584 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3585 © | 4822 117 10834 | 47kΩ | 1% | 0,1W |
| 3586 © | 4822 117 10834 | 47kΩ | 1% | 0,1W |
| 3587 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3588 © | 4822 051 20154 | 150kΩ | 5% | 0,1W |
| 3589 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3590 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3591 © | 4822 051 20223 | 22kΩ | 5% | 0,1W |
| 3592 © | 4822 051 20223 | 22kΩ | 5% | 0,1W |
| 3593 | 4822 116 52264 | 27kΩ | 5% | 0,5W |
| 3594 © | 4822 051 20273 | 27kΩ | 5% | 0,1W |
| 3595 © | 4822 051 20333 | 33kΩ | 5% | 0,1W |
| 3596 © | 4822 117 10837 | 100kΩ | 1% | 0,1W |
| 3597 © | 4822 051 20105 | 1MΩ | 5% | 0,1W |
| 3598 © | 4822 051 20475 | 4,7MΩ | 5% | 0,1W |
| 3599 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3601 © | 4822 051 20332 | 3,3kΩ | 5% | 0,1W |
| 3602 © | 4822 051 20332 | 3,3kΩ | 5% | 0,1W |
| 3603 © | 4822 051 20684 | 680kΩ | 5% | 0,1W |
| 3604 © | 4822 051 20684 | 680kΩ | 5% | 0,1W |
| 3605 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3606 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3607 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3608 | 4822 050 21003 | 10kΩ | 2% | 0,25W |

## *ELECTRICAL PARTSLIST AF7 BOARD*

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3609 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3610 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3611 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3612 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3613 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3614 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3615 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3616 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3617 © | 4822 051 20822 | 8,2kΩ | 5% | 0,1W |
| 3618 © | 4822 051 20822 | 8,2kΩ | 5% | 0,1W |
| 3619 © | 4822 051 20822 | 8,2kΩ | 5% | 0,1W |
| 3620 © | 4822 051 20822 | 8,2kΩ | 5% | 0,1W |
| 3621 © | 4822 051 20822 | 8,2kΩ | 5% | 0,1W |
| 3622 © | 4822 051 20822 | 8,2kΩ | 5% | 0,1W |
| 3623 © | 4822 117 10834 | 47kΩ | 1% | 0,1W |
| 3624 © | 4822 117 10834 | 47kΩ | 1% | 0,1W |
| 3625 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3626 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3627 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3628 © | 4822 117 11503 | 220Ω | 5% | 0,1W |
| 3629 © | 4822 117 11454 | 820Ω | 1% | |
| 3631 © | 4822 117 11454 | 820Ω | 1% | |
| 3632 | 4822 116 52231 | 820Ω | 5% | 0,5W |
| 3633 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3634 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3635 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3636 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3637 © | 4822 117 10834 | 47kΩ | 1% | 0,1W |
| 3638 © | 4822 117 10834 | 47kΩ | 1% | 0,1W |
| 3639 © | 4822 117 11507 | 6,8kΩ | 1% | 0,1W |
| 3640 © | 4822 117 11507 | 6,8kΩ | 1% | 0,1W |
| 3641 ⚠ | 4822 052 10109 | 10Ω | 5% | NFR |
| 3642 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3643 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3645 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3646 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3647 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3648 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3649 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3650 © | 4822 051 20479 | 47Ω | 5% | 0,1W |
| 3651 © | 4822 051 20392 | 3,9kΩ | 5% | 0,1W |
| 3652 © | 4822 051 20392 | 3,9kΩ | 5% | 0,1W |
| 3655 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3656 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3657 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3658 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3660 © | 4822 051 20472 | 4,7kΩ | 5% | 0,1W |
| 3661 | 4822 053 20475 | 4,7MΩ | 5% | 0,25W |
| 3662 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3663 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3667 © | 4822 051 20392 | 3,9kΩ | 5% | 0,1W |
| 3668 © | 4822 051 20392 | 3,9kΩ | 5% | 0,1W |
| 3671 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3672 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |
| 3673 © | 4822 117 12955 | 2,7kΩ | 1% | 0,1W |
| 3674 © | 4822 051 20334 | 330kΩ | 5% | 0,1W |
| 3675 © | 4822 051 20392 | 3,9kΩ | 5% | 0,1W |
| 3676 © | 4822 051 20101 | 100Ω | 5% | 0,1W |
| 3677 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3678 © | 4822 117 13579 | 220kΩ | 1% | 0.1W |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3679 © | 4822 051 20391 | 390Ω | 5% | 0,1W |
| 3680 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3681 | 4822 052 10229 | 22Ω | 5% | 0,33W |
| 3682 © | 4822 051 10102 | 1kΩ | 2% | 0,25W |
| 3683 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3684 © | 4822 051 20392 | 3,9kΩ | 5% | 0,1W |
| 3686 © | 4822 117 11383 | 12kΩ | 1% | 0,1W |
| 3687 © | 4822 117 11383 | 12kΩ | 1% | 0,1W |
| 3688 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3689 © | 4822 051 20471 | 470Ω | 5% | 0,1W |
| 3690 © | 4822 051 20109 | 10Ω | 5% | 0,1W |
| 3691 © | 4822 051 20109 | 10Ω | 5% | 0,1W |
| 3692 © | 4822 117 10833 | 10kΩ | 1% | 0,1W |
| 3693 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3694 © | 4822 051 20562 | 5,6kΩ | 5% | 0,1W |
| 3695 | 4822 116 81154 | 2,2Ω | 5% | 0,5W |
| 3696 © | 4822 117 11449 | 2,2kΩ | 1% | 0,1W |
| 3697 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3698 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3699 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3773 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 4516 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4517 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4518 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4519 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4520 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4521 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4522 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4524 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4525 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4526 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4527 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4528 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4529 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4531 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4532 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4533 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4534 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4535 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4536 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4537 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4538 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4540 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4541 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4542 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4543 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4544 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4545 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4546 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4547 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4548 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4549 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4550 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4551 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4552 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4553 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4554 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4555 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4556 © | 4822 051 20008 | CHIP JUMPER 0805 | | |
| 4557 © | 4822 051 20008 | CHIP JUMPER 0805 | | |

## *ELECTRICAL PARTSLIST AF7 BOARD*

### RESISTORS

| | | |
|---|---|---|
| 4558 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4559 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4560 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4561 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4562 © | 4822 051 20008 | CHIP JUMPER 0805 |
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| 4565 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4567 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4568 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4569 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4570 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4571 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4572 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4573 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4574 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4575 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4576 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4577 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4579 © | 4822 051 20008 | CHIP JUMPER 0805 |
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| 4581 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4582 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4583 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4585 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4586 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4587 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4588 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4589 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4591 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4592 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4593 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4595 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4597 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4599 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4600 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4601 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4602 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4603 © | 4822 051 20008 | CHIP JUMPER 0805 |
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| 4607 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4608 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4609 © | 4822 051 20008 | CHIP JUMPER 0805 |
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| 4612 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4613 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4614 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4615 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4618 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4619 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4620 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4621 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4622 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4623 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4624 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4625 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4626 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4627 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4629 © | 4822 051 20008 | CHIP JUMPER 0805 |

### RESISTORS

| | | |
|---|---|---|
| 4630 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4715 © | 4822 051 20008 | CHIP JUMPER 0805 |
| 4716 © | 4822 051 20008 | CHIP JUMPER 0805 |

### COILS

| | | |
|---|---|---|
| 5511 | 4822 157 62552 | 2,2µH |
| 5523 | 4822 157 62552 | 2,2µH |
| 5531 | 4822 157 62552 | 2,2µH |
| 5532 | 4822 157 62552 | 2,2µH |

### DIODES

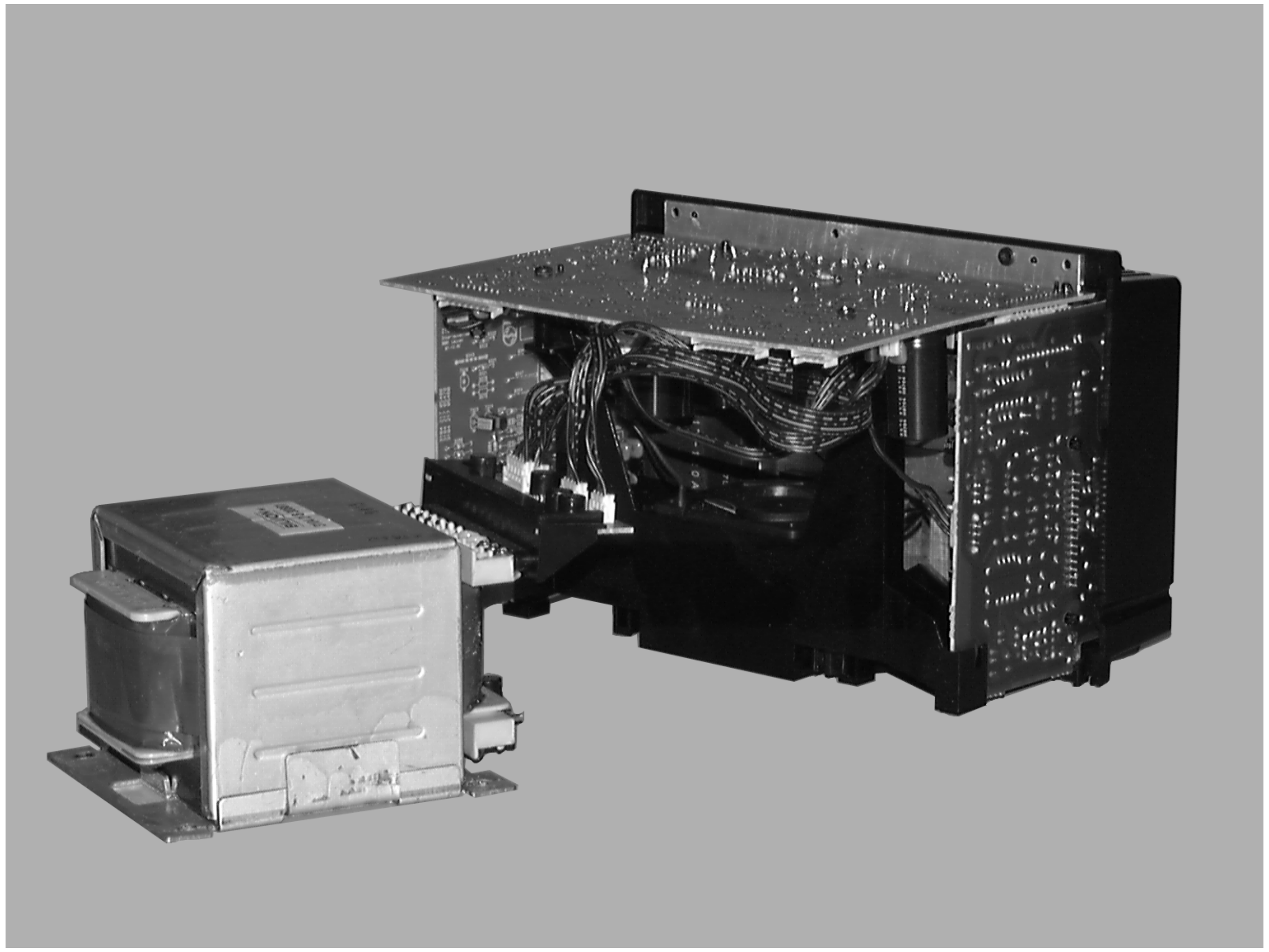
| | | |
|---|---|---|
| 6512 | 4822 130 30862 | BZX79-C9V1 |
| 6514 | 4822 130 31878 | 1N4003G |
| 6515 | 4822 130 30621 | 1N4148 |
| 6516 | 4822 130 30621 | 1N4148 |
| 6531 | 4822 130 30621 | 1N4148 |

### TRANSISTORS

| | | |
|---|---|---|
| 7521 © | 4822 130 60511 | BC847B |
| 7522 © | 4822 130 60511 | BC847B |
| 7523 © | 4822 130 60511 | BC847B |
| 7524 © | 4822 130 60511 | BC847B |
| 7525 | 4822 130 40959 | BC547B |
| 7526 © | 4822 130 60373 | BC856B |
| 7527 © | 4822 130 60511 | BC847B |
| 7528 © | 4822 130 60511 | BC847B |
| 7529 © | 4822 130 60373 | BC856B |
| 7531 © | 4822 130 60511 | BC847B |
| 7532 © | 4822 130 60511 | BC847B |
| 7533 © | 4822 130 60511 | BC847B |
| 7534 © | 4822 130 60511 | BC847B |
| 7535 © | 4822 130 42804 | BC817-25 |
| 7536 © | 4822 130 42804 | BC817-25 |
| 7537 © | 4822 130 60511 | BC847B |
| 7538 © | 4822 130 60511 | BC847B |
| 7539 © | 4822 130 60373 | BC856B |
| 7541 © | 4822 130 60511 | BC847B |
| 7542 © | 4822 130 60511 | BC847B |
| 7543 © | 4822 130 42804 | BC817-25 |
| 7552 | 4822 130 41246 | BC327-25 |
| 7553 © | 4822 130 60511 | BC847B |

### INTEGRATED CIRCUITS

| | | |
|---|---|---|
| 7511 © | 4822 209 17386 | TDA7437T, Selector&Sound processor |
| 7512 © | 4822 209 83357 | NJM4560M, 2-FOLD OP-AMP. |
| 7513 © | 4822 209 83357 | NJM4560M, 2-FOLD OP-AMP. |
| 7515 © | 4822 209 31378 | NJM4556M, 2-FOLD OP-AMP. |
| 7551 © | 4822 209 17345 | M62320FP, I2C SHIFT REGISTER |



# POWER 5-VA Module

## (not for /37)

**Stage .8**

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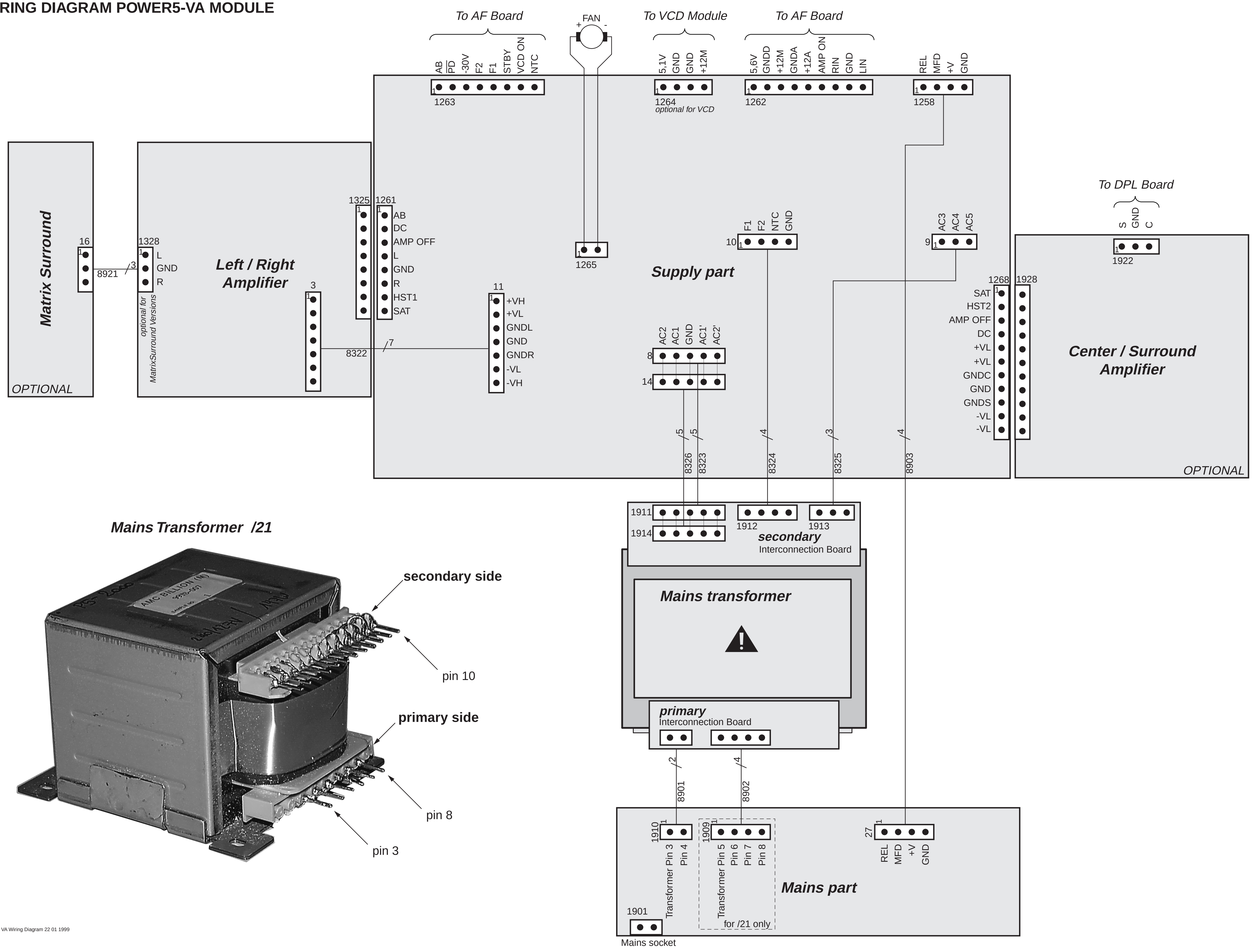
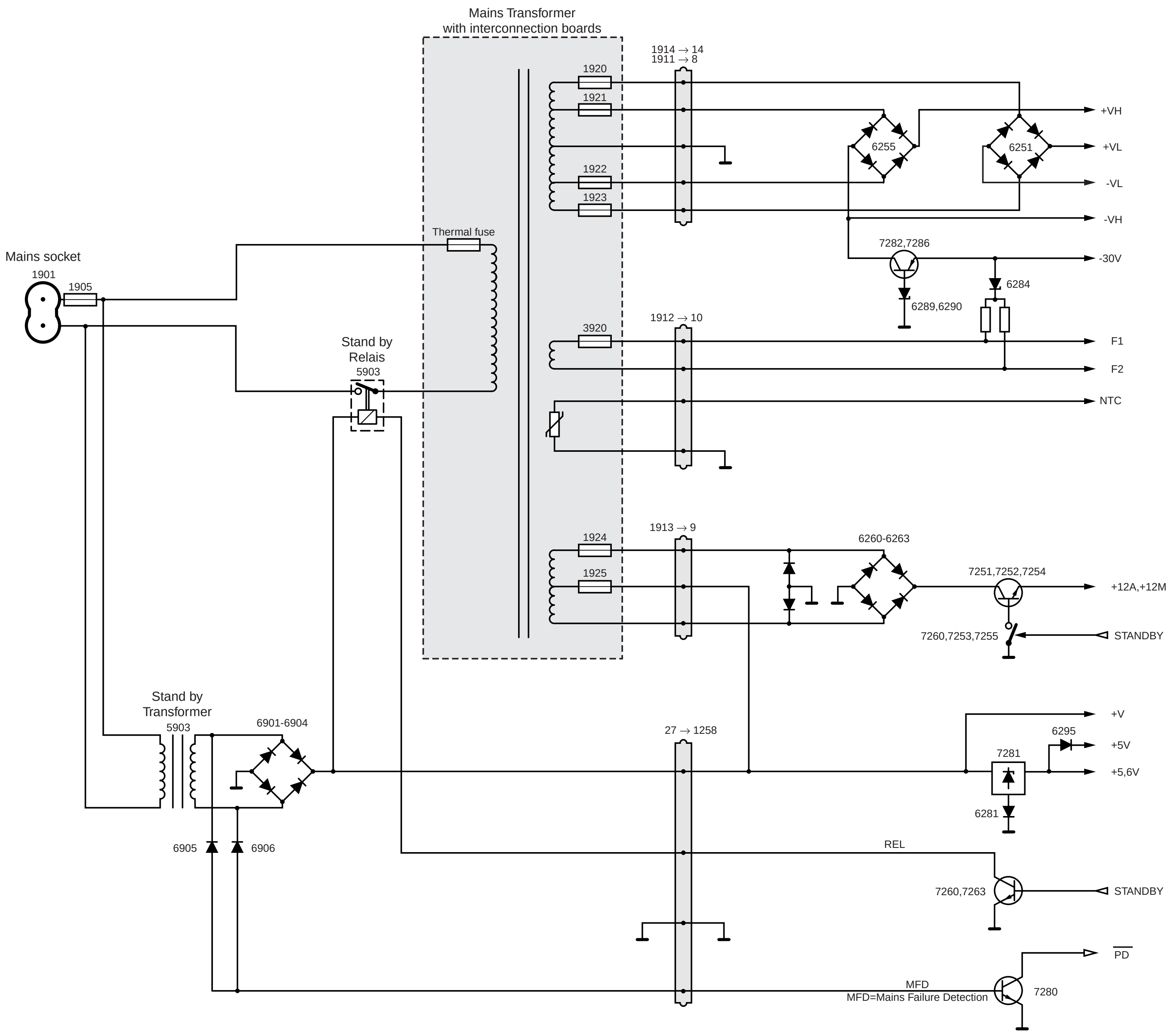
## Technical remarks

## WIRING DIAGRAM POWER5-VA MODULE

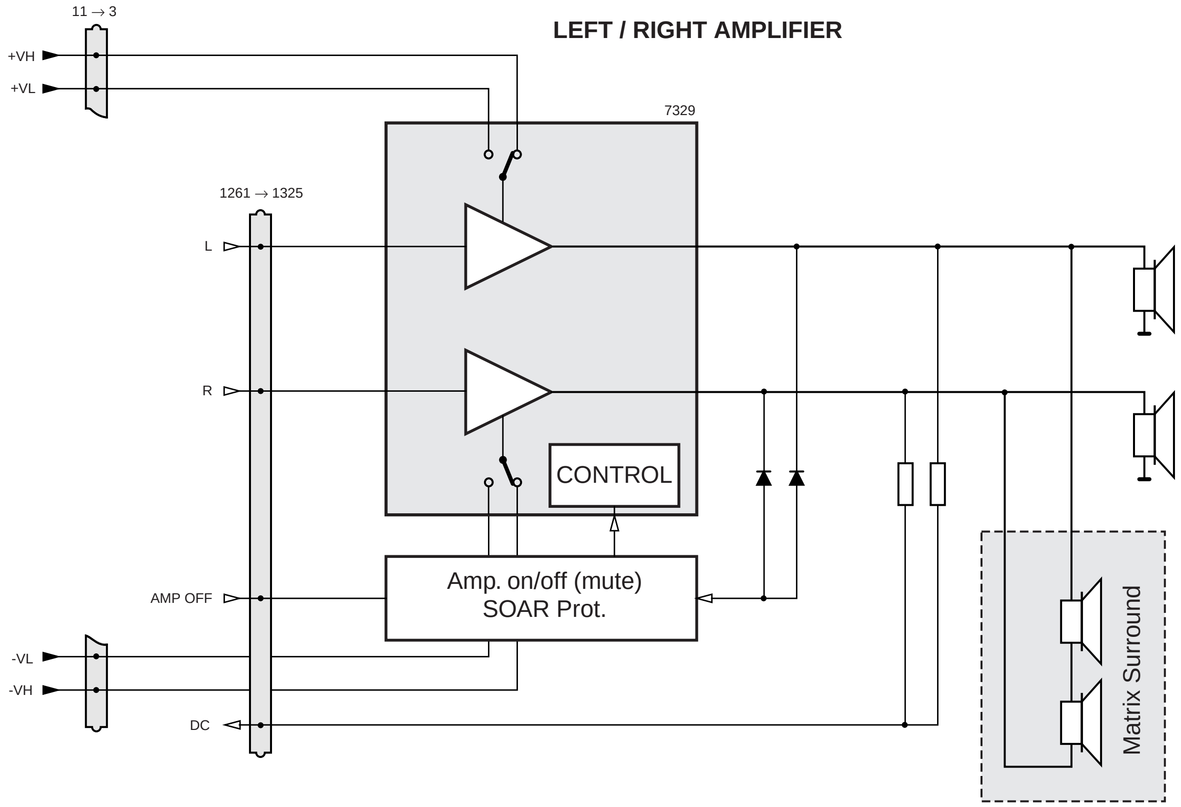

To AF Board
AB
PD
-30V
F2
F1
STBY
VCD ON
NTC
1263
FAN
+
-
To VCD Module
5,1V
GND
GND
+12M
1264
optional for VCD
To AF Board
5,6V
GNDD
+12M
GNDA
+12A
AMP ON
RIN
GND
LIN
1262
REL
MFD
+V
GND
1258
Matrix Surround
OPTIONAL
16
8921
3
1328
L
GND
R
optional for MatrixSurround Versions
Left / Right Amplifier
3
8322
7
1325
1261
AB
DC
AMP OFF
L
GND
R
HST1
SAT
11
+VH
+VL
GNDL
GND
GNDR
-VL
-VH
1265
Supply part
F1
F2
NTC
GND
10
AC3
AC4
AC5
9
AC2
AC1
GND
AC1'
AC2'
8
14
5
5
4
3
4
8326
8323
8324
8325
8903
To DPL Board
S
GND
C
1922
1268
1928
SAT
HST2
AMP OFF
DC
+VL
+VL
GNDC
GND
GNDS
-VL
-VL
Center / Surround Amplifier
OPTIONAL
1911
1914
1912
1913
secondary
Interconnection Board
Mains transformer
primary
Interconnection Board
2
4
8901
8902
1910
Transformer Pin 3
Pin 4
1909
Transformer Pin 5
Pin 6
Pin 7
Pin 8
for /21 only
27
REL
MFD
+V
GND
Mains part
1901
Mains socket
Mains Transformer /21
secondary side
pin 10
primary side
pin 8
pin 3

# BLOCK DIAGRAM 70/100W VERSION

## SUPPLY PART

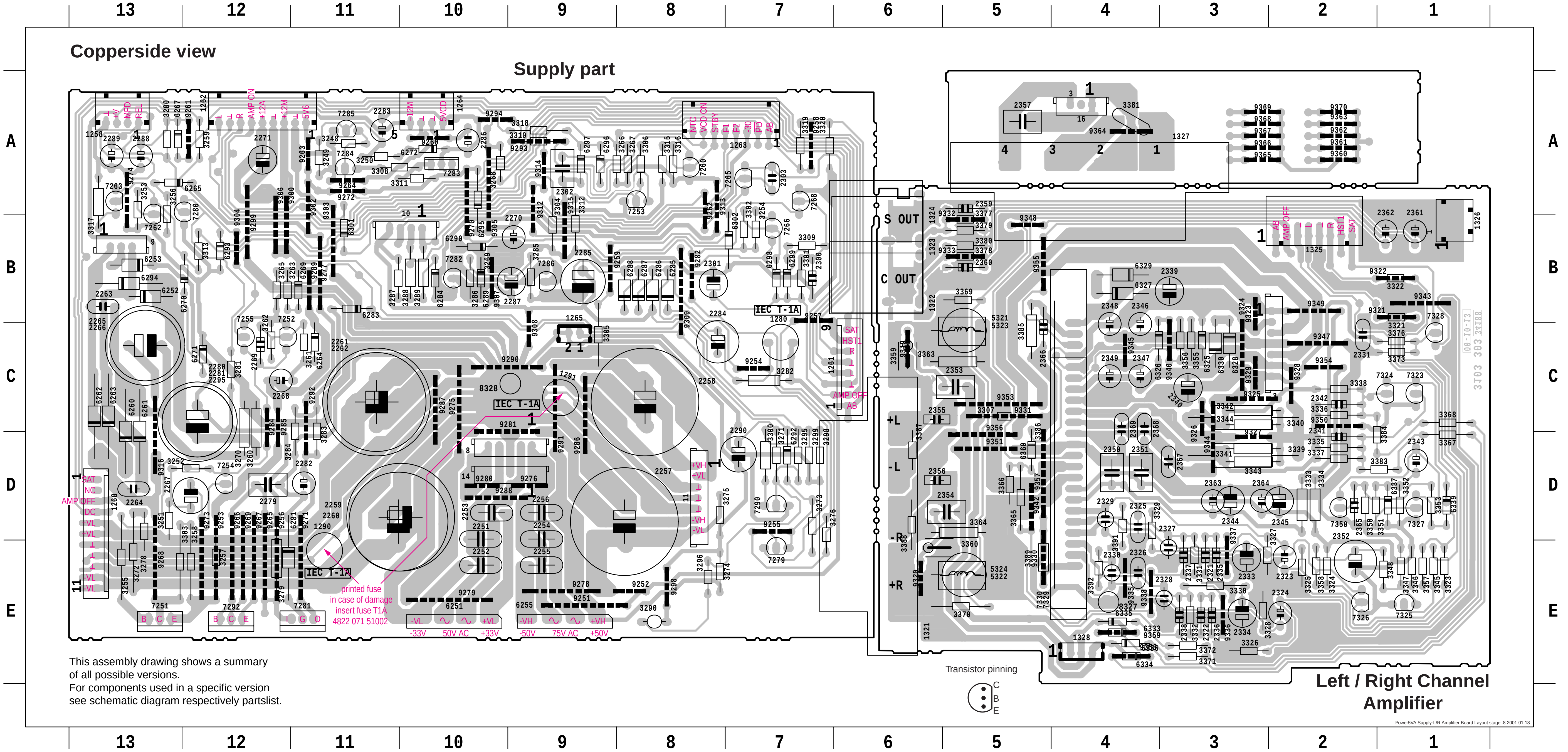

Mains Transformer
with interconnection boards
Mains socket
1901
1905
Thermal fuse
1920
1921
1922
1923
1914 → 14
1911 → 8
6255
6251
+VH
+VL
-VL
-VH
7282,7286
-30V
6284
6289,6290
3920
1912 → 10
F1
F2
NTC
Stand by
Relais
5903
1924
1925
1913 → 9
6260-6263
7251,7252,7254
+12A,+12M
7260,7253,7255
STANDBY
Stand by
Transformer
5903
6901-6904
27 → 1258
+V
6295
+5V
7281
+5,6V
6281
6905
6906
REL
7260,7263
STANDBY
PD
MFD
MFD=Mains Failure Detection
7280

## LEFT / RIGHT AMPLIFIER


11 → 3
+VH
+VL
7329
1261 → 1325
L
R
CONTROL
AMP OFF
Amp. on/off (mute)
SOAR Prot.
-VL
-VH
DC
Matrix Surround

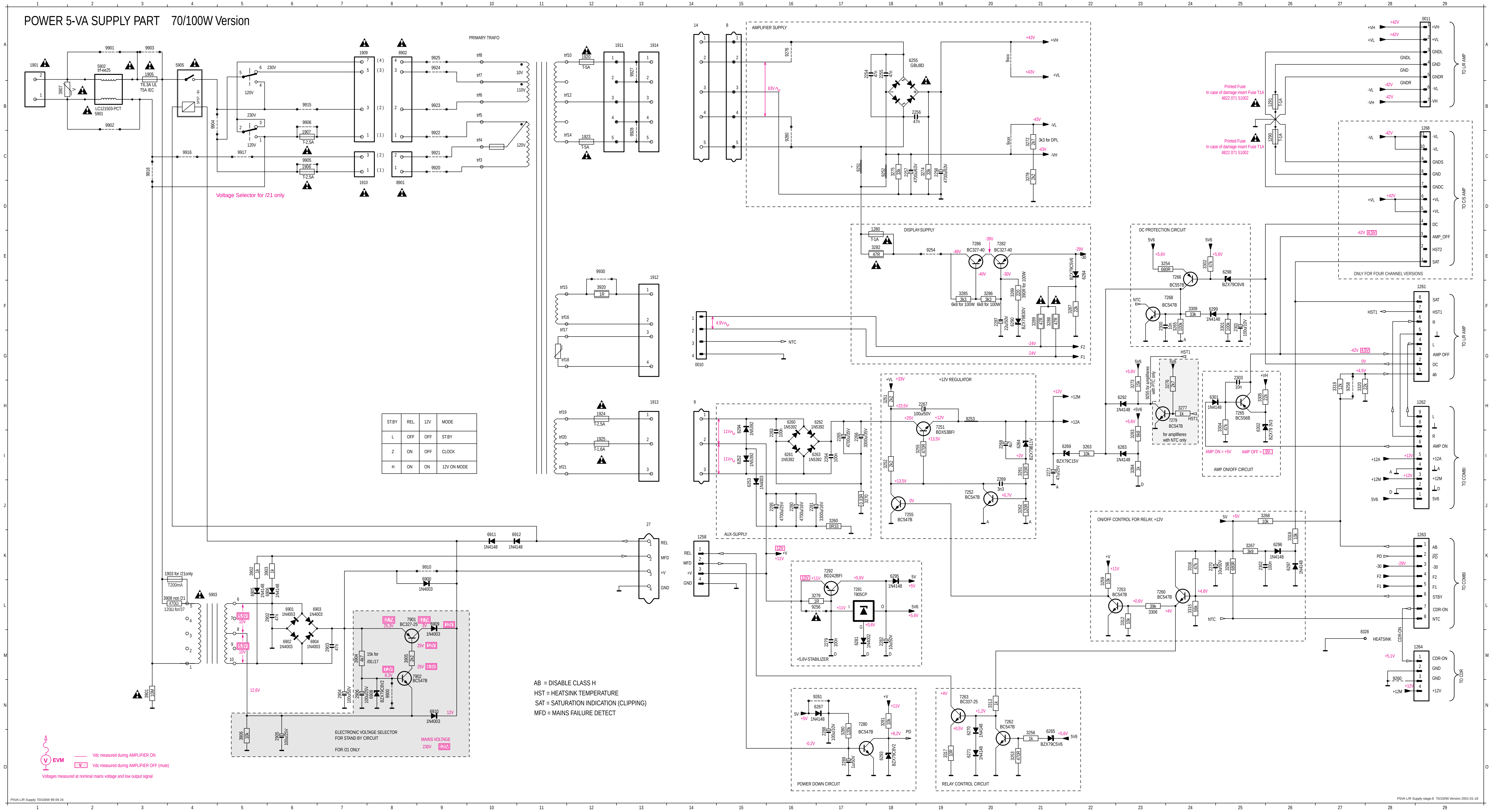
# COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

| | | |
|---|---|---|
| 9360 | A | 2 |
| 9361 | A | 2 |
| 9362 | A | 2 |
| 9363 | A | 2 |
| 9364 | A | 4 |
| 9365 | A | 3 |
| 9366 | A | 3 |
| 9367 | A | 3 |
| 9368 | A | 3 |
| 9369 | A | 3 |
| 9370 | A | 2 |
| ADD | | |
| 3276 | D | 6 |
| 7279 | D | 7 |
| 9257 | B | 7 |
| 9282 | B | 8 |
| 9314 | A | 9 |
| 9315 | B | 9 |
| 9316 | D | 13 |
| T256 | C | 13 |
| T257 | C | 12 |
| T258 | D | 13 |
| T265 | B | 10 |
| T305 | A | 11 |
| T312 | A | 7 |
| T314 | A | 10 |
| T315 | B | 9 |
| T316 | A | 10 |
| ---- | | |
| 16 | A | 4 |
| 1327 | A | 4 |
| 2357 | A | 5 |
| 3381 | A | 4 |
| 9291 | C | 9 |
| 9292 | C | 11 |
| 9293 | A | 9 |
| 9294 | A | 10 |
| 9298 | E | 8 |
| 9299 | B | 12 |
| 9300 | B | 12 |
| 9302 | A | 11 |
| 9303 | B | 11 |
| 9304 | B | 12 |
| 9305 | A | 10 |
| 9306 | B | 12 |
| 9307 | B | 10 |
| 9308 | C | 9 |
| 9309 | B | 8 |
| 9312 | A | 9 |
| 9313 | A | 8 |
| 9272 | A | 11 |
| 9273 | E | 12 |
| 9274 | A | 13 |
| 9275 | C | 10 |
| 9276 | D | 9 |
| 9277 | B | 11 |
| 9278 | E | 9 |
| 9279 | E | 10 |
| 9280 | D | 10 |
| 9281 | D | 10 |
| 9284 | C | 12 |
| 9285 | C | 12 |
| 9286 | C | 9 |
| 9287 | C | 10 |
| 9288 | D | 10 |
| 9289 | B | 11 |
| 9290 | C | 10 |
| 9254 | C | 7 |
| 9255 | D | 7 |
| 9256 | E | 12 |
| 9258 | A | 7 |
| 9259 | B | 9 |
| 9260 | A | 10 |
| 9261 | A | 12 |
| 9262 | A | 8 |
| 9263 | A | 11 |
| 9264 | A | 11 |
| 9265 | E | 12 |
| 9266 | E | 12 |
| 9267 | E | 12 |
| 9268 | E | 13 |
| 9269 | E | 12 |
| 9270 | A | 10 |
| 9271 | E | 11 |
| 7263 | A | 13 |
| 7265 | A | 7 |
| 7266 | B | 7 |
| 7268 | A | 7 |
| 7280 | A | 12 |
| 7281 | E | 11 |
| 7282 | B | 10 |
| 7283 | A | 10 |
| 7284 | A | 11 |
| 7285 | A | 11 |
| 7286 | B | 9 |
| 7290 | D | 7 |
| 7292 | E | 12 |
| 8328 | C | 9 |
| 9251 | E | 9 |
| 9252 | E | 8 |
| 9253 | E | 12 |
| 6292 | D | 7 |
| 6293 | B | 12 |
| 6294 | B | 13 |
| 6295 | A | 10 |
| 6296 | A | 9 |
| 6297 | A | 9 |
| 6298 | B | 7 |
| 6299 | B | 7 |
| 6301 | B | 11 |
| 6302 | B | 7 |
| 7251 | E | 13 |
| 7252 | C | 12 |
| 7253 | A | 8 |
| 7254 | D | 12 |
| 7255 | C | 12 |
| 7260 | A | 8 |
| 7262 | B | 13 |
| 6263 | C | 13 |
| 6264 | C | 11 |
| 6265 | A | 13 |
| 6267 | A | 13 |
| 6269 | B | 11 |
| 6270 | B | 12 |
| 6271 | C | 12 |
| 6272 | A | 10 |
| 6281 | E | 12 |
| 6283 | B | 11 |
| 6284 | B | 10 |
| 6285 | B | 8 |
| 6286 | B | 8 |
| 6287 | B | 8 |
| 6288 | B | 8 |
| 6289 | B | 10 |
| 6290 | B | 10 |
| 3310 | A | 9 |
| 3311 | A | 10 |
| 3312 | B | 9 |
| 3313 | B | 12 |
| 3315 | A | 8 |
| 3316 | A | 8 |
| 3317 | A | 13 |
| 3318 | A | 9 |
| 3319 | A | 7 |
| 3320 | A | 7 |
| 6251 | E | 10 |
| 6252 | B | 13 |
| 6253 | B | 13 |
| 6255 | E | 9 |
| 6260 | D | 13 |
| 6261 | D | 13 |
| 6262 | C | 13 |
| 3287 | B | 11 |
| 3288 | B | 10 |
| 3289 | B | 10 |
| 3290 | E | 8 |
| 3295 | D | 7 |
| 3296 | E | 8 |
| 3298 | D | 7 |
| 3299 | D | 7 |
| 3300 | D | 7 |
| 3301 | B | 7 |
| 3302 | B | 7 |
| 3303 | E | 13 |
| 3304 | B | 9 |
| 3305 | C | 9 |
| 3306 | A | 8 |
| 3308 | A | 10 |
| 3309 | B | 7 |
| 3268 | A | 10 |
| 3269 | B | 10 |
| 3270 | C | 12 |
| 3271 | D | 7 |
| 3272 | E | 13 |
| 3273 | D | 7 |
| 3274 | E | 8 |
| 3275 | D | 8 |
| 3278 | D | 13 |
| 3279 | E | 12 |
| 3280 | A | 13 |
| 3281 | C | 12 |
| 3282 | C | 7 |
| 3283 | D | 11 |
| 3284 | D | 11 |
| 3285 | B | 9 |
| 3286 | B | 10 |
| 3250 | A | 11 |
| 3251 | D | 13 |
| 3252 | D | 12 |
| 3253 | A | 13 |
| 3254 | B | 7 |
| 3255 | E | 13 |
| 3256 | B | 13 |
| 3257 | E | 12 |
| 3258 | E | 12 |
| 3259 | A | 12 |
| 3260 | C | 12 |
| 3261 | C | 11 |
| 3262 | C | 12 |
| 3263 | B | 12 |
| 3265 | B | 12 |
| 3266 | A | 8 |
| 3267 | A | 8 |
| 2281 | C | 12 |
| 2282 | D | 11 |
| 2283 | A | 11 |
| 2284 | C | 8 |
| 2285 | B | 9 |
| 2286 | A | 10 |
| 2287 | B | 9 |
| 2288 | A | 13 |
| 2289 | A | 13 |
| 2290 | D | 7 |
| 2295 | C | 12 |
| 2300 | B | 7 |
| 2301 | B | 8 |
| 2302 | A | 9 |
| 2303 | A | 7 |
| 3248 | A | 11 |
| 3249 | A | 11 |
| 2257 | D | 8 |
| 2258 | C | 8 |
| 2259 | D | 10 |
| 2260 | D | 11 |
| 2261 | C | 11 |
| 2262 | C | 11 |
| 2263 | B | 13 |
| 2264 | D | 13 |
| 2265 | C | 13 |
| 2266 | C | 13 |
| 2267 | D | 12 |
| 2268 | C | 12 |
| 2269 | C | 12 |
| 2270 | B | 9 |
| 2271 | A | 12 |
| 2279 | D | 12 |
| 2280 | C | 12 |
| 14 | D | 9 |
| 1258 | A | 13 |
| 1261 | C | 6 |
| 1262 | A | 12 |
| 1263 | A | 7 |
| 1264 | A | 10 |
| 1265 | C | 9 |
| 1268 | D | 13 |
| 1280 | C | 7 |
| 1290 | E | 11 |
| 1291 | C | 9 |
| 2251 | D | 10 |
| 2252 | E | 10 |
| 2253 | D | 10 |
| 2254 | D | 9 |
| 2255 | E | 9 |
| 2256 | D | 9 |
| 9348 | B | 5 |
| 9349 | B | 2 |
| 9350 | C | 2 |
| 9351 | D | 5 |
| 9353 | C | 5 |
| 9354 | C | 2 |
| 9355 | B | 5 |
| 9356 | D | 5 |
| 9357 | D | 5 |
| 9358 | E | 4 |
| 9359 | E | 4 |
| T321 | A | 1 |
| ---- | | |
| 8 | D | 9 |
| 9 | B | 13 |
| 10 | B | 10 |
| 11 | D | 8 |
| 9327 | D | 3 |
| 9328 | C | 2 |
| 9329 | C | 3 |
| 9330 | E | 5 |
| 9331 | C | 5 |
| 9332 | B | 5 |
| 9333 | B | 5 |
| 9335 | E | 4 |
| 9336 | E | 3 |
| 9337 | E | 3 |
| 9338 | E | 4 |
| 9340 | C | 3 |
| 9342 | D | 5 |
| 9343 | B | 1 |
| 9344 | D | 3 |
| 9345 | C | 4 |
| 9347 | C | 2 |
| 7324 | C | 1 |
| 7325 | E | 1 |
| 7326 | E | 2 |
| 7327 | D | 1 |
| 7328 | C | 1 |
| 7329 | D | 4 |
| 7330 | C | 4 |
| 7350 | D | 2 |
| 8327 | E | 4 |
| 9319 | C | 6 |
| 9320 | E | 6 |
| 9321 | B | 1 |
| 9322 | B | 1 |
| 9323 | B | 3 |
| 9324 | C | 3 |
| 9325 | C | 3 |
| 9326 | C | 3 |
| 5322 | E | 5 |
| 5323 | C | 5 |
| 5324 | E | 5 |
| 6325 | C | 3 |
| 6326 | C | 4 |
| 6327 | B | 4 |
| 6328 | C | 3 |
| 6329 | B | 4 |
| 6330 | C | 3 |
| 6333 | E | 4 |
| 6334 | E | 4 |
| 6335 | E | 4 |
| 6336 | E | 4 |
| 6337 | D | 1 |
| 6339 | D | 1 |
| 6360 | D | 5 |
| 7323 | C | 1 |
| 3372 | E | 3 |
| 3373 | C | 1 |
| 3376 | C | 1 |
| 3377 | B | 5 |
| 3378 | B | 5 |
| 3379 | B | 5 |
| 3380 | B | 5 |
| 3383 | D | 1 |
| 3384 | D | 1 |
| 3385 | C | 5 |
| 3386 | D | 5 |
| 3387 | D | 6 |
| 3388 | D | 6 |
| 3389 | E | 5 |
| 3391 | D | 4 |
| 3392 | E | 4 |
| 5321 | C | 5 |
| 3352 | D | 1 |
| 3353 | D | 1 |
| 3355 | C | 3 |
| 3356 | C | 3 |
| 3357 | E | 1 |
| 3358 | E | 2 |
| 3359 | C | 6 |
| 3360 | E | 6 |
| 3363 | C | 5 |
| 3364 | D | 5 |
| 3365 | D | 5 |
| 3366 | D | 5 |
| 3367 | D | 1 |
| 3368 | C | 1 |
| 3369 | B | 5 |
| 3370 | E | 5 |
| 3371 | E | 3 |
| 3334 | D | 2 |
| 3335 | D | 2 |
| 3336 | C | 2 |
| 3337 | D | 2 |
| 3338 | C | 2 |
| 3339 | D | 2 |
| 3340 | C | 2 |
| 3341 | D | 3 |
| 3342 | C | 3 |
| 3343 | D | 3 |
| 3344 | C | 3 |
| 3345 | E | 1 |
| 3346 | E | 1 |
| 3347 | E | 1 |
| 3348 | E | 1 |
| 3350 | D | 2 |
| 3351 | D | 2 |
| 2367 | D | 3 |
| 2368 | C | 4 |
| 2369 | C | 4 |
| 3307 | C | 5 |
| 3321 | B | 1 |
| 3322 | B | 1 |
| 3323 | E | 1 |
| 3324 | E | 2 |
| 3325 | E | 2 |
| 3326 | E | 3 |
| 3327 | E | 3 |
| 3328 | E | 3 |
| 3329 | D | 4 |
| 3330 | E | 3 |
| 3331 | E | 3 |
| 3332 | E | 3 |
| 3333 | D | 2 |
| 2348 | C | 4 |
| 2349 | C | 4 |
| 2350 | D | 4 |
| 2351 | D | 4 |
| 2352 | E | 2 |
| 2353 | C | 5 |
| 2354 | D | 5 |
| 2355 | C | 6 |
| 2356 | D | 6 |
| 2359 | A | 5 |
| 2360 | B | 5 |
| 2361 | B | 1 |
| 2362 | B | 1 |
| 2363 | D | 3 |
| 2364 | D | 3 |
| 2365 | D | 2 |
| 2366 | C | 5 |
| 2330 | E | 4 |
| 2331 | C | 2 |
| 2333 | E | 3 |
| 2334 | E | 3 |
| 2335 | E | 3 |
| 2336 | E | 3 |
| 2337 | E | 3 |
| 2338 | E | 3 |
| 2339 | B | 3 |
| 2340 | C | 3 |
| 2341 | D | 2 |
| 2342 | C | 2 |
| 2343 | D | 1 |
| 2344 | D | 3 |
| 2345 | D | 2 |
| 2346 | C | 4 |
| 2347 | C | 4 |
| 3 | C | 2 |
| 1321 | D | 6 |
| 1322 | B | 6 |
| 1323 | B | 6 |
| 1324 | B | 6 |
| 1325 | B | 2 |
| 1326 | B | 1 |
| 1328 | E | 4 |
| 2321 | E | 3 |
| 2322 | E | 3 |
| 2323 | E | 2 |
| 2324 | E | 2 |
| 2325 | D | 4 |
| 2326 | E | 4 |
| 2327 | E | 3 |
| 2328 | E | 3 |
| 2329 | D | 4 |



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

# POWER 5-VA SUPPLY PART 70/100W Version


PRIMARY TRAFO
Voltage Selector for /21 only
AMPLIFIER SUPPLY
DISPLAY-SUPPLY
DC PROTECTION CIRCUIT
ONLY FOR FOUR CHANNEL VERSIONS
+12V REGULATOR
AUX-SUPPLY
AMP ON/OFF CIRCUIT
ON/OFF CONTROL FOR RELAY, +12V
+5,6V-STABILIZER
POWER DOWN CIRCUIT
RELAY CONTROL CIRCUIT
ELECTRONIC VOLTAGE SELECTOR FOR STAND BY CIRCUIT
FOR /21 ONLY
MAINS VOLTAGE 230V
TO L/R AMP
TO C/S AMP
TO COMBI
TO CDR
Printed Fuse In case of damage insert Fuse T1A 4822 071 51002
EVM
Vdc measured during AMPLIFIER ON
V Vdc measured during AMPLIFIER OFF (mute)
Voltages measured at nominal mains voltage and low output signal

| ST.BY | REL | 12V | MODE |
|---|---|---|---|
| L | OFF | OFF | ST.BY |
| Z | ON | OFF | CLOCK |
| H | ON | ON | 12V ON MODE |

AB = DISABLE CLASS H
HST = HEATSINK TEMPERATURE
SAT = SATURATION INDICATION (CLIPPING)
MFD = MAINS FAILURE DETECT

| | |
|---|---|
| 0010 | G14 |
| 0011 | B29 |
| 1258 | K14 |
| 1261 | F29 |
| 1262 | H29 |
| 1263 | M29 |
| 1264 | M29 |
| 1265 | N29 |
| 1268 | B29 |
| 1280 | E18 |
| 1290 | C26 |
| 1291 | B26 |
| 14 | A14 |
| 1901 | A 1 |
| 1903 | J15 |
| 1905 | A 3 |
| 1906 | C 6 |
| 1907 | C 6 |
| 1909 | A 7 |
| 1910 | D 7 |
| 1911 | A13 |
| 1912 | E13 |
| 1913 | H13 |
| 1914 | A13 |
| 1920 | A12 |
| 1921 | A12 |
| 1922 | B12 |
| 1923 | C12 |
| 1924 | H12 |
| 1925 | I12 |
| 2251 | A16 |
| 2252 | A16 |
| 2253 | B17 |
| 2254 | A18 |
| 2255 | A18 |
| 2256 | B19 |
| 2257 | C18 |
| 2258 | C19 |
| 2260 | C20 |
| 2262 | C20 |
| 2263 | I16 |
| 2264 | I17 |
| 2265 | I17 |
| 2266 | I17 |
| 2267 | H19 |
| 2268 | I20 |
| 2269 | J20 |
| 2270 | K24 |
| 2271 | I21 |
| 2279 | M17 |
| 2280 | J16 |
| 2281 | J16 |
| 2282 | M18 |
| 2283 | N24 |
| 2286 | N25 |
| 2287 | F20 |
| 2288 | O17 |
| 2289 | O17 |
| 2290 | O26 |
| 2295 | J16 |
| 2300 | F23 |
| 2301 | F25 |
| 2302 | K25 |
| 2303 | G24 |
| 27 | J13 |
| 2902 | L 6 |
| 2903 | M 7 |
| 2904 | N 7 |
| 2905 | N 6 |
| 2906 | N 7 |
| 3248 | O23 |
| 3249 | O24 |
| 3250 | O24 |
| 3251 | H18 |
| 3252 | I18 |
| 3253 | O20 |
| 3254 | E24 |
| 3255 | I19 |
| 3256 | O21 |
| 3259 | L22 |
| 3260 | J17 |
| 3261 | I21 |
| 3262 | J21 |
| 3263 | I22 |
| 3265 | F24 |
| 3266 | K25 |
| 3267 | K25 |
| 3268 | J26 |
| 3269 | F21 |
| 3270 | J18 |
| 3271 | O26 |
| 3272 | C21 |
| 3273 | H23 |
| 3274 | C19 |
| 3275 | C18 |
| 3278 | C21 |
| 3279 | L17 |
| 3280 | O17 |
| 3281 | N18 |
| 3282 | E18 |
| 3283 | I23 |
| 3284 | I23 |
| 3285 | F19 |
| 3286 | F20 |
| 3287 | F22 |
| 3288 | F21 |
| 3289 | F21 |
| 3290 | O26 |
| 3295 | N26 |
| 3296 | O27 |
| 3298 | N27 |
| 3299 | N28 |
| 3300 | N27 |
| 3301 | F25 |
| 3302 | E24 |
| 3304 | H24 |
| 3305 | H25 |
| 3306 | L23 |
| 3308 | N23 |
| 3309 | F24 |
| 3310 | N23 |
| 3311 | N23 |
| 3312 | L23 |
| 3313 | N20 |
| 3315 | L24 |
| 3316 | K24 |
| 3317 | O19 |
| 3318 | K26 |
| 3319 | H27 |
| 3320 | H27 |
| 3901 | N 3 |
| 3902 | K 5 |
| 3903 | K 6 |
| 3904 | M 7 |
| 3905 | M 8 |
| 3906 | N 5 |
| 3907 | B 1 |
| 3908 | L 4 |
| 3920 | F12 |
| 5901 | B 2 |
| 5902 | A 2 |
| 5903 | L 4 |
| 5905 | A 4 |
| 6251 | A17 |
| 6252 | I15 |
| 6253 | J15 |
| 6255 | A18 |
| 6260 | H16 |
| 6261 | I16 |
| 6262 | H17 |
| 6263 | I17 |
| 6264 | I20 |
| 6265 | N21 |
| 6267 | N17 |
| 6269 | I22 |
| 6270 | O19 |
| 6271 | O19 |
| 6272 | N24 |
| 6281 | M17 |
| 6283 | I23 |
| 6284 | E22 |
| 6289 | F21 |
| 6290 | F20 |
| 6292 | H23 |
| 6293 | O18 |
| 6294 | H15 |
| 6295 | K18 |
| 6296 | K26 |
| 6297 | K26 |
| 6298 | E25 |
| 6299 | F24 |
| 6301 | H24 |
| 6302 | H25 |
| 6900 | K 9 |
| 6901 | L 6 |
| 6902 | M 6 |
| 6903 | L 7 |
| 6904 | M 6 |
| 6905 | L 5 |
| 6906 | L 5 |
| 6908 | N 8 |
| 6909 | L 9 |
| 6910 | N 9 |
| 6911 | K10 |
| 6912 | K11 |
| 7251 | H19 |
| 7252 | J20 |
| 7253 | L23 |
| 7255 | J18 |
| 7260 | L24 |
| 7262 | N20 |
| 7263 | N20 |
| 7265 | H24 |
| 7266 | E24 |
| 7268 | F24 |
| 7280 | N17 |
| 7281 | L17 |
| 7282 | E20 |
| 7283 | M23 |
| 7284 | O23 |
| 7285 | O24 |
| 7286 | E20 |
| 7290 | N26 |
| 7292 | K17 |
| 7901 | L 8 |
| 7902 | M 8 |
| 8 | A15 |
| 8901 | D 8 |
| 8902 | A 8 |
| 9 | H14 |
| 9251 | C17 |
| 9252 | C18 |
| 9253 | H20 |
| 9254 | E19 |
| 9255 | H23 |
| 9256 | L17 |
| 9258 | H27 |
| 9260 | N28 |
| 9261 | N17 |
| 9276 | A16 |
| 9280 | C16 |
| 9900 | N 8 |
| 9901 | A 2 |
| 9902 | B 2 |
| 9903 | A 3 |
| 9904 | B 4 |
| 9905 | C 6 |
| 9906 | B 6 |
| 9910 | K 9 |
| 9911 | F 1 |
| 9912 | G 1 |
| 9913 | G 1 |
| 9914 | G 1 |
| 9915 | B 6 |
| 9916 | C 4 |
| 9917 | C 5 |
| 9918 | C 3 |
| 9920 | C 9 |
| 9921 | C 9 |
| 9922 | C 9 |
| 9923 | B 9 |
| 9924 | A 9 |
| 9925 | A 9 |
| 9927 | A13 |
| 9928 | C13 |
| 9930 | E12 |
| trf10 | A11 |
| trf11 | A11 |
| trf12 | B11 |
| trf13 | B11 |
| trf14 | C11 |
| trf15 | F12 |
| trf16 | F11 |
| trf17 | G12 |
| trf18 | G11 |
| trf19 | H11 |
| trf20 | I11 |
| trf21 | I11 |
| trf3 | C10 |
| trf4 | C10 |
| trf5 | B10 |
| trf6 | B10 |
| trf7 | A10 |
| trf8 | A10 |

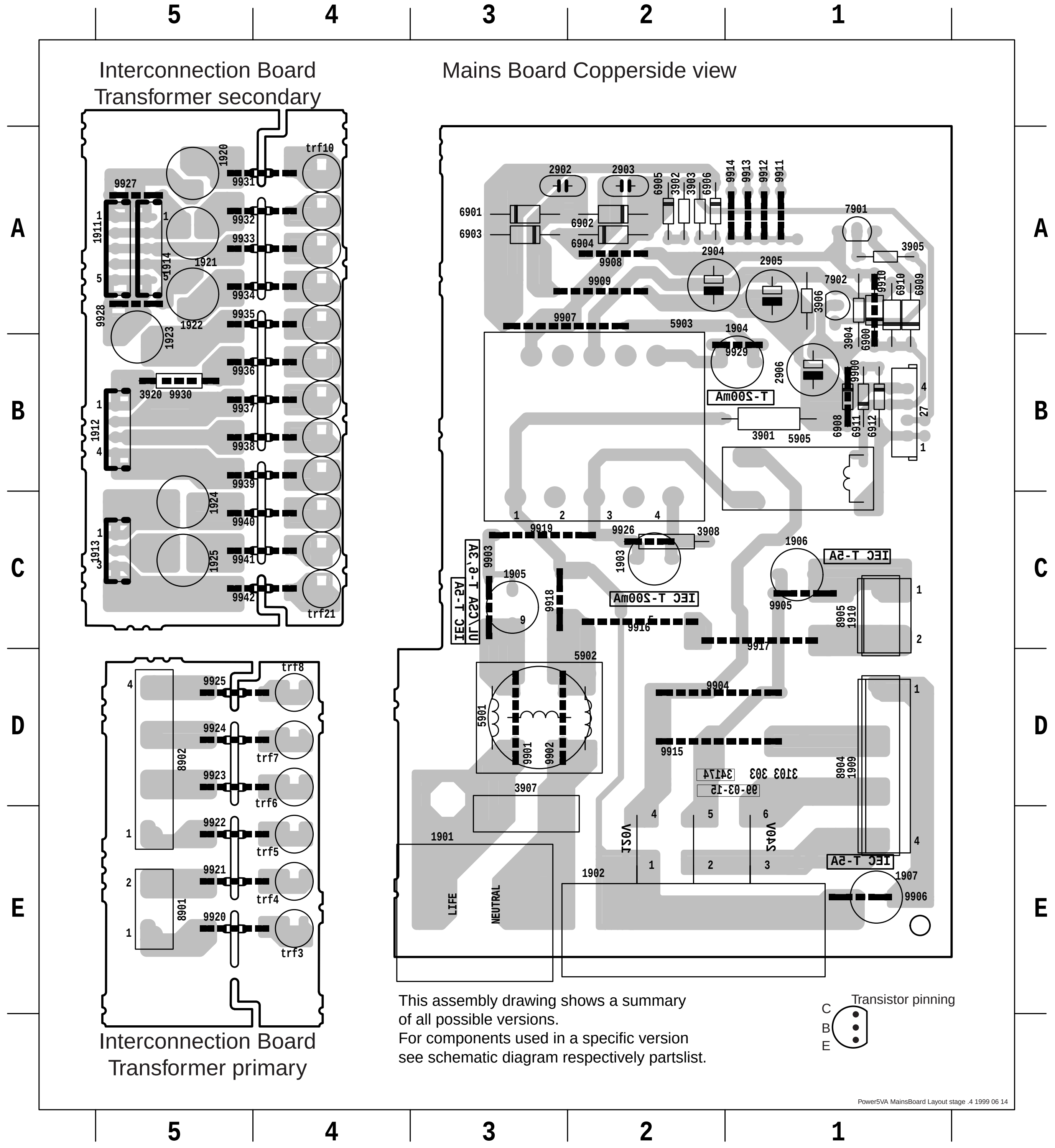
## COMPONENT LAYOUT MAINS BOARD

### Interconnection Board

| primary side | secondary side | | |
|---|---|---|---|
| 8901 E 5 | 1911 A 5 | 9930 B 4 | trf10 A 3 |
| 8902 D 5 | 1912 B 5 | 9931 A 4 | trf11 A 3 |
| 9920 E 4 | 1913 C 5 | 9932 A 4 | trf12 A 3 |
| 9921 E 4 | 1914 A 5 | 9933 A 4 | trf13 A 3 |
| 9922 E 4 | 1920 A 4 | 9934 A 4 | trf14 B 3 |
| 9923 D 4 | 1921 A 4 | 9935 B 4 | trf15 B 3 |
| 9924 D 4 | 1922 A 4 | 9936 B 4 | trf16 B 3 |
| 9925 D 4 | 1923 B 5 | 9937 B 4 | trf17 B 3 |
| trf3 E 4 | 1924 C 4 | 9938 B 4 | trf18 C 3 |
| trf4 E 4 | 1925 C 4 | 9939 C 4 | trf19 C 3 |
| trf5 E 4 | 3920 B 4 | 9940 C 4 | trf20 C 3 |
| trf6 D 4 | 9927 A 5 | 9941 C 4 | trf21 C 3 |
| trf7 D 4 | 9928 A 5 | 9942 C 4 | |
| trf8 D 4 | | | |

### Mains Board

| | | | | |
|---|---|---|---|---|
| 27 B 1 | 2905 A 1 | 5905 C 1 | 7901 A 1 | 9909 A 2 |
| 1901 E 3 | 2906 B 1 | 6900 B 1 | 7902 B 1 | 9910 B 1 |
| 1902 E 2 | 3901 B 1 | 6901 A 3 | 8904 D 1 | 9911 A 1 |
| 1903 C 2 | 3902 A 2 | 6902 A 2 | 8905 C 1 | 9912 A 1 |
| 1904 B 2 | 3903 A 2 | 6903 A 3 | 9900 B 1 | 9913 A 2 |
| 1905 C 3 | 3904 B 1 | 6904 A 2 | 9901 D 3 | 9914 A 2 |
| 1906 C 1 | 3905 A 1 | 6905 A 2 | 9902 D 3 | 9915 D 2 |
| 1907 E 1 | 3906 A 1 | 6906 A 2 | 9903 C 3 | 9916 D 2 |
| 1909 D 1 | 3907 E 3 | 6908 B 1 | 9904 D 2 | 9917 D 1 |
| 1910 C 1 | 3908 C 2 | 6909 B 1 | 9905 C 1 | 9918 C 3 |
| 2902 A 3 | 5901 D 3 | 6910 B 1 | 9906 E 1 | 9919 C 3 |
| 2903 A 2 | 5902 D 3 | 6911 B 1 | 9907 B 3 | 9926 C 2 |
| 2904 A 2 | 5903 B 2 | 6912 B 1 | 9908 A 2 | 9929 B 2 |

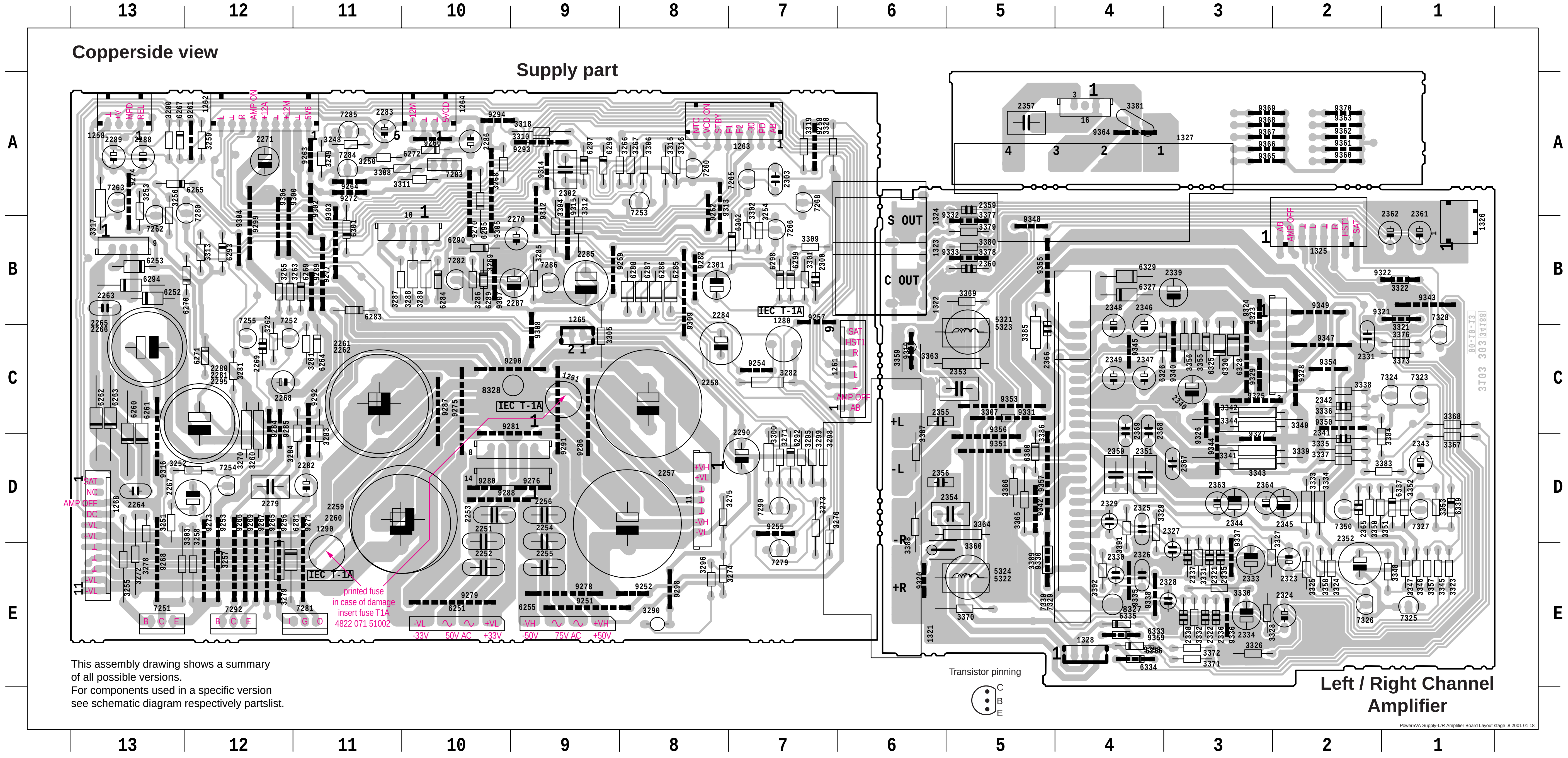


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

## COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

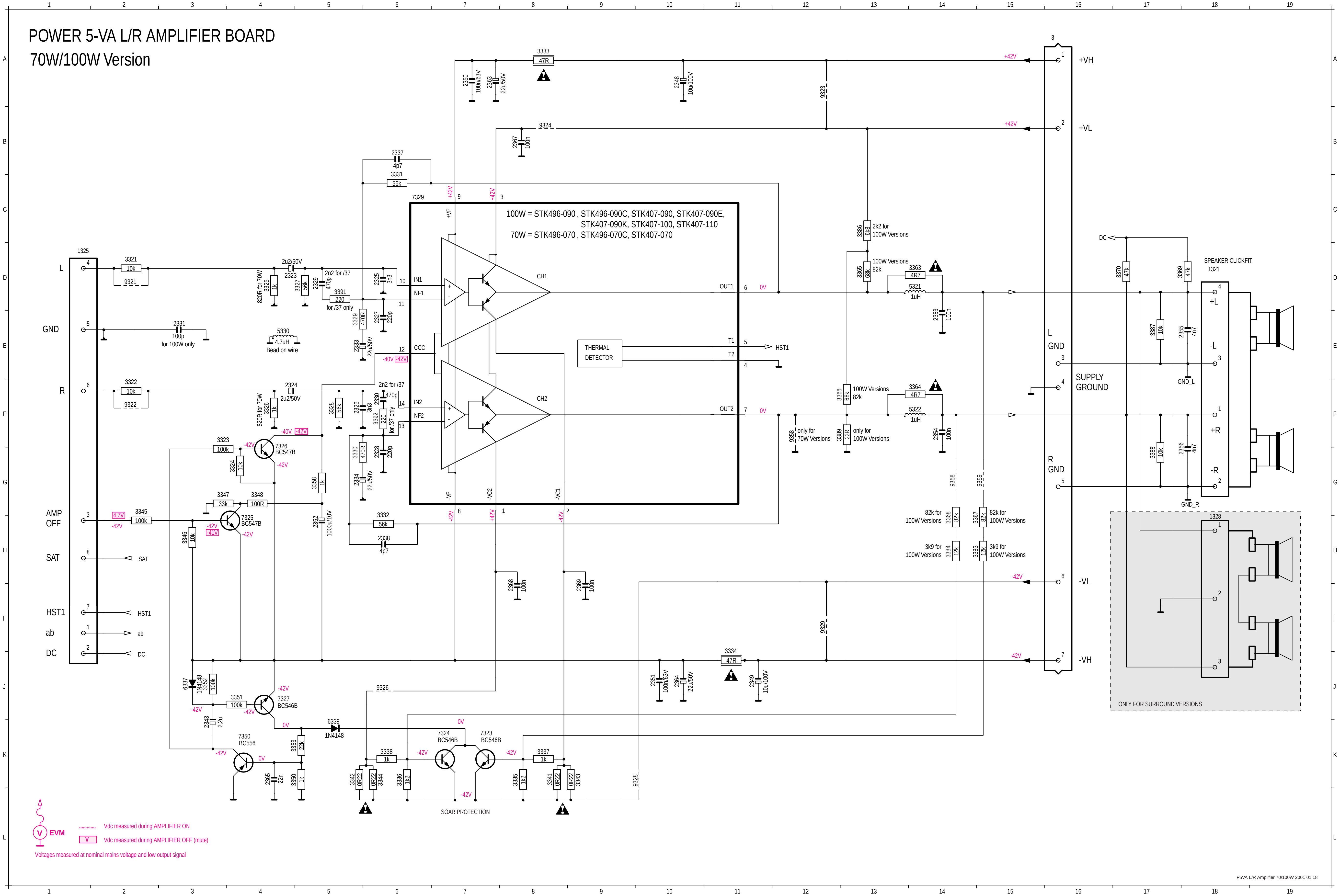
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9360 A 2 | 9314 A 9 | 9291 C 9 | 9272 A 11 | 9254 C 7 | 7263 A 13 | 6292 D 7 | 6263 C 13 | 3310 A 9 | 3287 B 11 | 3268 A 10 | 3250 A 11 | 2281 C 12 |
| 9361 A 2 | 9315 B 9 | 9292 C 11 | 9273 E 12 | 9255 D 7 | 7265 A 7 | 6293 B 12 | 6264 C 11 | 3311 A 10 | 3288 B 10 | 3269 B 10 | 3251 D 13 | 2282 D 11 |
| 9362 A 2 | 9316 D 13 | 9293 A 9 | 9274 A 13 | 9256 E 12 | 7266 B 7 | 6294 B 13 | 6265 A 13 | 3312 B 9 | 3289 B 10 | 3270 C 12 | 3252 D 12 | 2283 A 11 |
| 9363 A 2 | T256 C 13 | 9294 A 10 | 9275 C 10 | 9258 A 7 | 7268 A 7 | 6295 A 10 | 6267 A 13 | 3313 B 12 | 3290 E 8 | 3271 D 7 | 3253 A 13 | 2284 C 8 |
| 9364 A 4 | T257 C 12 | 9298 E 8 | 9276 D 9 | 9259 B 9 | 7280 A 12 | 6296 A 9 | 6269 B 11 | 3315 A 8 | 3295 D 7 | 3272 E 13 | 3254 B 7 | 2285 B 9 |
| 9365 A 3 | T258 D 13 | 9299 B 12 | 9277 B 11 | 9260 A 10 | 7281 E 11 | 6297 A 9 | 6270 B 12 | 3316 A 8 | 3296 E 8 | 3273 D 7 | 3255 E 13 | 2286 A 10 |
| 9366 A 3 | T265 B 10 | 9300 B 12 | 9278 E 9 | 9261 A 12 | 7282 B 10 | 6298 B 7 | 6271 C 12 | 3317 A 13 | 3298 D 7 | 3274 E 8 | 3256 B 13 | 2287 B 9 |
| 9367 A 3 | T305 A 11 | 9302 A 11 | 9279 E 10 | 9262 A 8 | 7283 A 10 | 6299 B 7 | 6272 A 10 | 3318 A 9 | 3299 D 7 | 3275 D 8 | 3257 E 12 | 2288 A 13 |
| 9368 A 3 | T312 A 7 | 9303 B 11 | 9280 D 10 | 9263 A 11 | 7284 A 11 | 6301 B 11 | 6281 E 12 | 3319 A 7 | 3300 D 7 | 3278 D 13 | 3258 E 12 | 2289 A 13 |
| 9369 A 3 | T314 A 10 | 9304 B 12 | 9281 D 10 | 9264 A 11 | 7285 A 11 | 6302 B 7 | 6283 B 11 | 3320 A 7 | 3301 B 7 | 3279 E 12 | 3259 A 12 | 2290 D 7 |
| 9370 A 2 | T315 B 9 | 9305 A 10 | 9284 C 12 | 9265 E 12 | 7286 B 9 | 7251 E 13 | 6284 B 10 | 6251 E 10 | 3302 B 7 | 3280 A 13 | 3260 C 12 | 2295 C 12 |
| | T316 A 10 | 9306 B 12 | 9285 C 12 | 9266 E 12 | 7290 D 7 | 7252 C 12 | 6285 B 8 | 6252 B 13 | 3303 E 13 | 3281 C 12 | 3261 C 11 | 2300 B 7 |
| ADD | ---- | 9307 B 10 | 9286 C 9 | 9267 E 12 | 7292 E 12 | 7253 A 8 | 6286 B 8 | 6253 B 13 | 3304 B 9 | 3282 C 7 | 3262 C 12 | 2301 B 8 |
| 3276 D 6 | 16 A 4 | 9308 C 9 | 9287 C 10 | 9268 E 13 | 8328 C 9 | 7254 D 12 | 6287 B 8 | 6255 E 9 | 3305 C 9 | 3283 D 11 | 3263 B 12 | 2302 A 9 |
| 7279 D 7 | 1327 A 4 | 9309 B 8 | 9288 D 10 | 9269 E 12 | 9251 E 9 | 7255 C 12 | 6288 B 8 | 6260 D 13 | 3306 A 8 | 3284 D 11 | 3265 B 12 | 2303 A 7 |
| 9257 B 7 | 2357 A 5 | 9312 A 9 | 9289 B 11 | 9270 A 10 | 9252 E 8 | 7260 A 8 | 6289 B 10 | 6261 D 13 | 3308 A 10 | 3285 B 9 | 3266 A 8 | 3248 A 11 |
| 9282 B 8 | 3381 A 4 | 9313 A 8 | 9290 C 10 | 9271 E 11 | 9253 E 12 | 7262 B 13 | 6290 B 10 | 6262 C 13 | 3309 B 7 | 3286 B 10 | 3267 A 8 | 3249 A 11 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2257 D 8 | 14 D 9 | 9348 B 5 | 9327 D 3 | 7324 C 1 | 5322 E 5 | 3372 E 3 | 3352 D 1 | 3334 D 2 | 2367 D 3 | 2348 C 4 | 2330 E 4 | 3 C 2 |
| 2258 C 8 | 1258 A 13 | 9349 B 2 | 9328 C 2 | 7325 E 1 | 5323 C 5 | 3373 C 1 | 3353 D 1 | 3335 D 2 | 2368 C 4 | 2349 C 4 | 2331 C 2 | 1321 D 6 |
| 2259 D 10 | 1261 C 6 | 9350 C 2 | 9329 C 3 | 7326 E 2 | 5324 E 5 | 3376 C 1 | 3355 C 3 | 3336 C 2 | 2369 C 4 | 2350 D 4 | 2333 E 3 | 1322 B 6 |
| 2260 D 11 | 1262 A 12 | 9351 D 5 | 9330 E 5 | 7327 D 1 | 6325 C 3 | 3377 B 5 | 3356 C 3 | 3337 D 2 | 3307 C 5 | 2351 D 4 | 2334 E 3 | 1323 B 6 |
| 2261 C 11 | 1263 A 7 | 9353 C 5 | 9331 C 5 | 7328 C 1 | 6326 C 4 | 3378 B 5 | 3357 E 1 | 3338 C 2 | 3321 B 1 | 2352 E 2 | 2335 E 3 | 1324 B 6 |
| 2262 C 11 | 1264 A 10 | 9354 C 2 | 9332 B 5 | 7329 D 4 | 6327 B 4 | 3379 B 5 | 3358 E 2 | 3339 D 2 | 3322 B 1 | 2353 C 5 | 2336 E 3 | 1325 B 2 |
| 2263 B 13 | 1265 C 9 | 9355 B 5 | 9333 B 5 | 7330 C 4 | 6328 C 3 | 3380 B 5 | 3359 C 6 | 3340 C 2 | 3323 E 1 | 2354 D 5 | 2337 E 3 | 1326 B 1 |
| 2264 D 13 | 1268 D 13 | 9356 D 5 | 9335 E 4 | 7350 D 2 | 6329 B 4 | 3383 D 1 | 3360 E 6 | 3341 D 3 | 3324 E 2 | 2355 C 6 | 2338 E 3 | 1328 E 4 |
| 2265 C 13 | 1280 C 7 | 9357 D 5 | 9336 E 3 | 8327 E 4 | 6330 C 3 | 3384 D 1 | 3363 C 5 | 3342 C 3 | 3325 E 2 | 2356 D 6 | 2339 B 3 | 2321 E 3 |
| 2266 C 13 | 1290 E 11 | 9358 E 4 | 9337 E 3 | 9319 C 6 | 6333 E 4 | 3385 C 5 | 3364 D 5 | 3343 D 3 | 3326 E 3 | 2359 A 5 | 2340 C 3 | 2322 E 3 |
| 2267 D 12 | 1291 C 9 | 9359 E 4 | 9338 E 4 | 9320 E 6 | 6334 E 4 | 3386 D 5 | 3365 D 5 | 3344 C 3 | 3327 E 3 | 2360 B 5 | 2341 D 2 | 2323 E 2 |
| 2268 C 12 | 2251 D 10 | T321 A 1 | 9340 C 3 | 9321 B 1 | 6335 E 4 | 3387 D 6 | 3366 D 5 | 3345 E 1 | 3328 E 3 | 2361 B 1 | 2342 C 2 | 2324 E 2 |
| 2269 C 12 | 2252 E 10 | ---- | 9342 D 5 | 9322 B 1 | 6336 E 4 | 3388 D 6 | 3367 D 1 | 3346 E 1 | 3329 D 4 | 2362 B 1 | 2343 D 1 | 2325 D 4 |
| 2270 B 9 | 2253 D 10 | 8 D 9 | 9343 B 1 | 9323 B 3 | 6337 D 1 | 3389 E 5 | 3368 C 1 | 3347 E 1 | 3330 E 3 | 2363 D 3 | 2344 D 3 | 2326 E 4 |
| 2271 A 12 | 2254 D 9 | 9 B 13 | 9344 D 3 | 9324 C 3 | 6339 D 1 | 3391 D 4 | 3369 B 5 | 3348 E 1 | 3331 E 3 | 2364 D 3 | 2345 D 2 | 2327 E 3 |
| 2279 D 12 | 2255 E 9 | 10 B 10 | 9345 C 4 | 9325 C 3 | 6360 D 5 | 3392 E 4 | 3370 E 5 | 3350 D 2 | 3332 E 3 | 2365 D 2 | 2346 C 4 | 2328 E 3 |
| 2280 C 12 | 2256 D 9 | 11 D 8 | 9347 C 2 | 9326 C 3 | 7323 C 1 | 5321 C 5 | 3371 E 3 | 3351 D 2 | 3333 D 2 | 2366 C 5 | 2347 C 4 | 2329 D 4 |



This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

# POWER 5-VA L/R AMPLIFIER BOARD
## 70W/100W Version


1325
L
GND
R
AMP OFF
SAT
HST1
ab
DC
3321 10k
9321
2331 100p for 100W only
3322 10k
9322
2u2/50V 2323
2324 2u2/50V
820R for 70W 3325 1k
820R for 70W 3326 1k
3327 56k
3328 56k
2329 470p
2n2 for /37
3391 220 for /37 only
2325 3n3
2326 3n3
5330 4,7uH Bead on wire
2337 4p7
3331 56k
7329
+VP
+42V
IN1
NF1
CCC
IN2
NF2
CH1
CH2
OUT1
OUT2
T1
T2
THERMAL DETECTOR
HST1
100W = STK496-090 , STK496-090C, STK407-090, STK407-090E, STK407-090K, STK407-100, STK407-110
70W = STK496-070 , STK496-070C, STK407-070
-VP
-VC2
-VC1
3329 470R
2327 220p
2333 22u/50V
3330 470R
2328 220p
2334 22u/50V
3392 220 for /37 only
2330 470p
2n2 for /37
-40V -42V
3323 100k
7326 BC547B
3324 10k
3347 33k
3348 100R
3345 100k
4,7V
-42V
7325 BC547B
-41V
3346 10k
3358 1k
2352 1000u/10V
3332 56k
2338 4p7
2350 100n/63V
2363 22u/50V
3333 47R
2348 10u/100V
9323
9324
2367 100n
2368 100n
2369 100n
6337 1N4148
3352 100k
3351 100k
7327 BC546B
2343 2.2u
7350 BC556
2365 22n
3353 22k
3350 1k
6339 1N4148
9326
3338 1k
3342 0R22
3344 0R22
3336 1k2
7324 BC546B
7323 BC546B
3337 1k
3335 1k2
3341 0R22
3343 0R22
SOAR PROTECTION
9328
2351 100n/63V
2364 22u/50V
3334 47R
2349 10u/100V
9329
3386 6k8 2k2 for 100W Versions
3385 68k 100W Versions 82k
3363 4R7
5321 1uH
2353 100n
3366 68k 100W Versions 82k
3364 4R7
5322 1uH
2354 100n
9358 only for 70W Versions
3389 22R only for 100W Versions
9358
9359
3368 82k 82k for 100W Versions
3367 82k 82k for 100W Versions
3384 12k 3k9 for 100W Versions
3383 12k 3k9 for 100W Versions
0V
+42V
-42V
3
+VH
+VL
L GND
SUPPLY GROUND
R GND
-VL
-VH
DC
3370 47k
3369 47k
3387 10k
2355 4n7
3388 10k
2356 4n7
SPEAKER CLICKFIT
1321
+L
-L
+R
-R
GND_L
GND_R
1328
ONLY FOR SURROUND VERSIONS
EVM
V

Vdc measured during AMPLIFIER ON

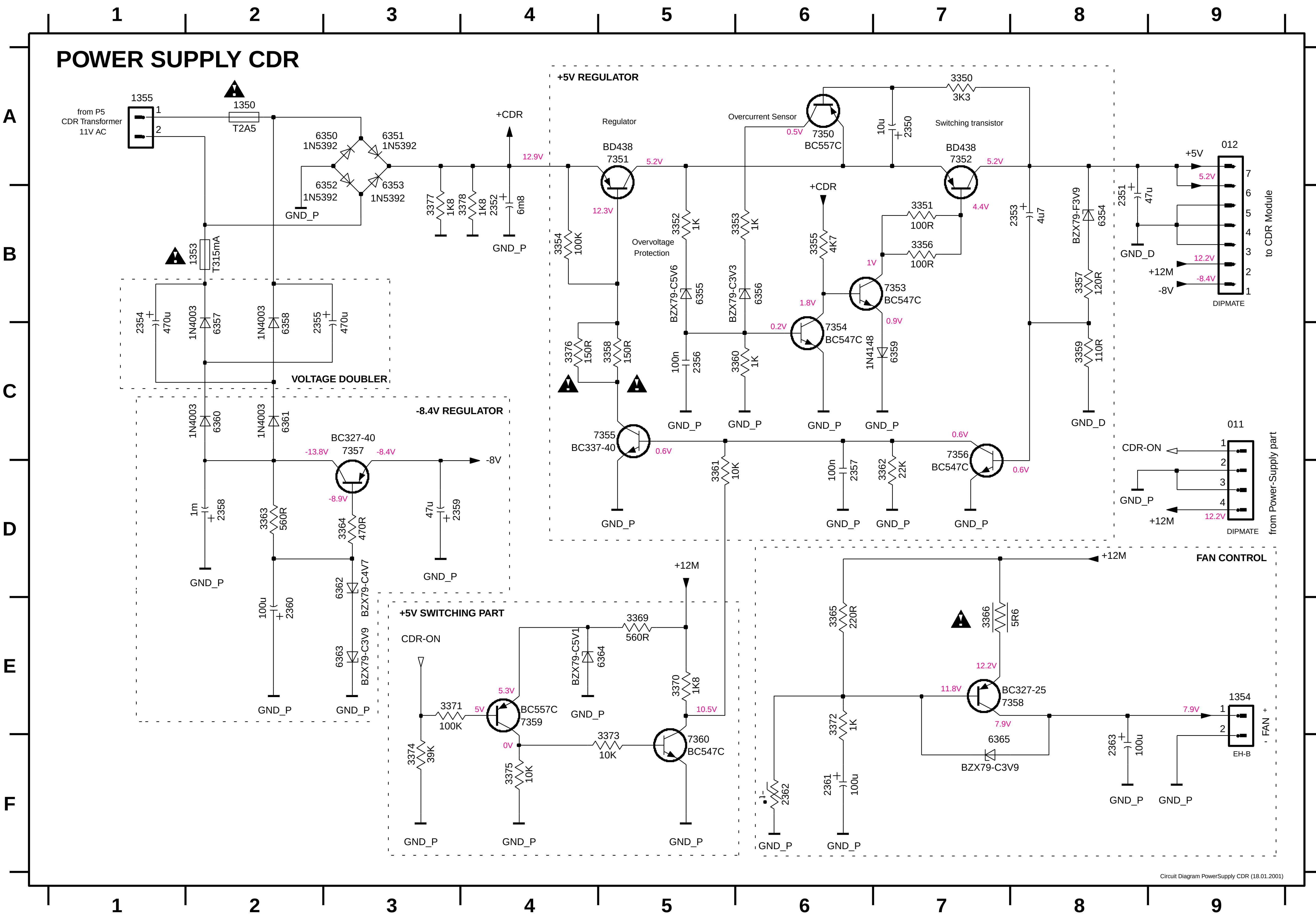
V Vdc measured during AMPLIFIER OFF (mute)

Voltages measured at nominal mains voltage and low output signal

P5VA L/R Amplifier 70/100W 2001 01 18

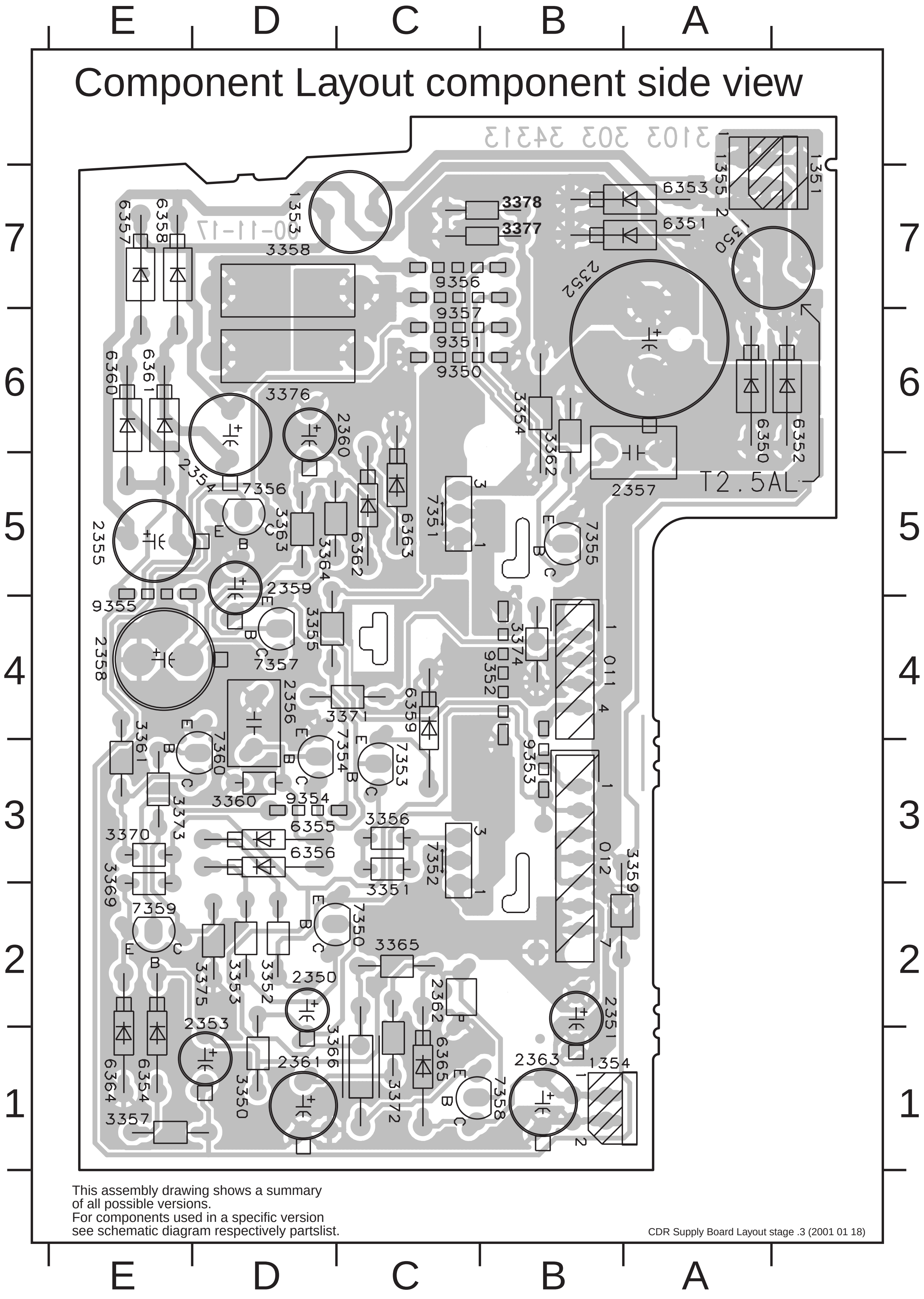
| | |
|---|---|
| 1321 | D18 |
| 1325 | D 1 |
| 1328 | G18 |
| 2321 | B 6 |
| 2322 | H 6 |
| 2323 | D 4 |
| 2324 | F 4 |
| 2325 | D 5 |
| 2326 | F 5 |
| 2327 | E 6 |
| 2328 | G 6 |
| 2329 | D 6 |
| 2330 | F 6 |
| 2331 | E 3 |
| 2333 | E 5 |
| 2334 | G 5 |
| 2335 | B 6 |
| 2336 | H 6 |
| 2337 | B 6 |
| 2338 | H 6 |
| 2341 | K 7 |
| 2342 | K 6 |
| 2343 | K 3 |
| 2344 | A 8 |
| 2345 | J10 |
| 2346 | B10 |
| 2347 | I11 |
| 2348 | A10 |
| 2349 | J11 |
| 2350 | A 7 |
| 2351 | J10 |
| 2352 | H 5 |
| 2353 | E14 |
| 2354 | F14 |
| 2355 | E18 |
| 2356 | G18 |
| 2363 | A 7 |
| 2364 | J10 |
| 2365 | K 4 |
| 2366 | C12 |
| 2367 | B8 |
| 2368 | I8 |
| 2369 | I9 |
| 3 | A16 |
| 3321 | D 2 |
| 3322 | F 2 |
| 3323 | F 3 |
| 3324 | G 4 |
| 3325 | D 4 |
| 3326 | F 4 |
| 3327 | D 5 |
| 3328 | F 5 |
| 3329 | E 5 |
| 3330 | G 5 |
| 3331 | C 6 |
| 3332 | H 6 |
| 3333 | A 8 |
| 3334 | J11 |
| 3335 | K 8 |
| 3336 | K 6 |
| 3337 | K 8 |
| 3338 | K 6 |
| 3341 | K 8 |
| 3342 | K 5 |
| 3343 | K 9 |
| 3344 | K 5 |
| 3345 | G 2 |
| 3346 | H 3 |
| 3347 | G 3 |
| 3348 | G 4 |
| 3350 | K 5 |
| 3351 | J 4 |
| 3352 | J 3 |
| 3353 | K 5 |
| 3355 | C12 |
| 3356 | I12 |
| 3358 | G 5 |
| 3363 | D14 |
| 3364 | E14 |
| 3365 | D13 |
| 3366 | F13 |
| 3367 | H15 |
| 3368 | H14 |
| 3369 | D18 |
| 3370 | D17 |
| 3383 | H15 |
| 3384 | H14 |
| 3385 | D12 |
| 3386 | C13 |
| 3387 | E17 |
| 3388 | G17 |
| 3389 | F13 |
| 5321 | D14 |
| 5322 | F14 |
| 5323 | D14 |
| 5324 | F14 |
| 6325 | B12 |
| 6326 | I12 |
| 6327 | A13 |
| 6328 | I13 |
| 6329 | A13 |
| 6330 | I13 |
| 6333 | G14 |
| 6334 | G14 |
| 6337 | J 3 |
| 6339 | K 5 |
| 6360 | C12 |
| 7323 | K 7 |
| 7324 | K 7 |
| 7325 | H 4 |
| 7326 | G 4 |
| 7327 | J 4 |
| 7329 | C 6 |
| 7350 | K 4 |
| 9321 | D 2 |
| 9322 | F 2 |
| 9323 | A12 |
| 9324 | J 6 |
| 9325 | J 6 |
| 9326 | J 6 |
| 9327 | K 9 |
| 9328 | K10 |
| 9329 | I12 |
| 9330 | F12 |
| 9331 | D12 |
| 9358 | G14 |
| 9359 | G15 |

# POWER SUPPLY CDR


1 2 3 4 5 6 7 8 9
A B C D E F
1355
from P5
CDR Transformer
11V AC
1350
T2A5
6350 1N5392
6351 1N5392
6352 1N5392
6353 1N5392
GND_P
+CDR
12.9V
3377 1K8
3378 1K8
2352 6m8
1353 T315mA
VOLTAGE DOUBLER
2354 470u
1N4003 6357
1N4003 6358
2355 470u
-8.4V REGULATOR
1N4003 6360
1N4003 6361
BC327-40
7357
-13.8V
-8.4V
-8.9V
-8V
1m 2358
3363 560R
3364 470R
47u 2359
100u 2360
6362 BZX79-C4V7
6363 BZX79-C3V9
+5V REGULATOR
Regulator
BD438
7351
12.3V
5.2V
3354 100K
Overvoltage Protection
3352 1K
BZX79-C5V6 6355
Overcurrent Sensor
0.5V
7350
BC557C
3353 1K
BZX79-C3V3 6356
10u 2350
3350 3K3
Switching transistor
BD438
7352
4.4V
+CDR
3355 4K7
3351 100R
3356 100R
1V
7353 BC547C
1.8V
0.2V
7354 BC547C
0.9V
1N4148 6359
100n 2356
3360 1K
3376 150R
3358 150R
7355
BC337-40
0.6V
3361 10K
100n 2357
3362 22K
0.6V
7356 BC547C
2353 4u7
BZX79-F3V9 6354
3357 120R
3359 110R
GND_D
2351 47u
+5V
012
5.2V
12.2V
-8.4V
+12M
-8V
7 6 5 4 3 2 1
DIPMATE
to CDR Module
011
CDR-ON
1 2 3 4
+12M
12.2V
DIPMATE
from Power-Supply part
+12M
+5V SWITCHING PART
CDR-ON
3371 100K
5V
5.3V
BC557C 7359
0V
3374 39K
3375 10K
BZX79-C5V1 6364
3369 560R
3370 1K8
10.5V
3373 10K
7360 BC547C
FAN CONTROL
+12M
3365 220R
3366 5R6
12.2V
11.8V
BC327-25 7358
7.9V
6365
BZX79-C3V9
3372 1K
2361 100u
2362
2363 100u
7.9V
1354
1 2
FAN
EH-B
Circuit Diagram PowerSupply CDR (18.01.2001)

| | |
|---|---|
| 011 | C9 |
| 012 | A9 |
| 1350 | A2 |
| 1351 | A1 |
| 1353 | B2 |
| 1354 | E9 |
| 1355 | A1 |
| 2350 | A7 |
| 2351 | B8 |
| 2352 | B4 |
| 2353 | B8 |
| 2354 | C1 |
| 2355 | C2 |
| 2356 | C5 |
| 2357 | D6 |
| 2358 | D2 |
| 2359 | D3 |
| 2360 | E2 |
| 2361 | F6 |
| 2362 | F6 |
| 2363 | F8 |
| 3350 | A7 |
| 3351 | B7 |
| 3352 | B5 |
| 3353 | B6 |
| 3354 | B4 |
| 3355 | B6 |
| 3356 | B7 |
| 3357 | B8 |
| 3358 | C5 |
| 3359 | C8 |
| 3360 | C6 |
| 3361 | D5 |
| 3362 | D7 |
| 3363 | D2 |
| 3364 | D3 |
| 3365 | E6 |
| 3366 | E7 |
| 3369 | E5 |
| 3370 | E5 |
| 3371 | E3 |
| 3372 | E6 |
| 3373 | F5 |
| 3374 | F3 |
| 3375 | F4 |
| 3376 | C4 |
| 6350 | A3 |
| 6351 | A3 |
| 6352 | B3 |
| 6353 | B3 |
| 6354 | B8 |
| 6355 | B5 |
| 6356 | B6 |
| 6357 | C2 |
| 6358 | C2 |
| 6359 | C7 |
| 6360 | C2 |
| 6361 | C2 |
| 6362 | D3 |
| 6363 | E3 |
| 6364 | E4 |
| 6365 | F7 |
| 7350 | A6 |
| 7351 | A5 |
| 7352 | A7 |
| 7353 | B7 |
| 7354 | C6 |
| 7355 | C5 |
| 7356 | C7 |
| 7357 | C3 |
| 7358 | E7 |
| 7359 | E4 |
| 7360 | F5 |

## Component Layout component side view


E
D
C
B
A
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3103 303 34313
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T2.5AL
1353
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011
3374
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9353
012
2356
3371
6359
3361
7360
7354
7353
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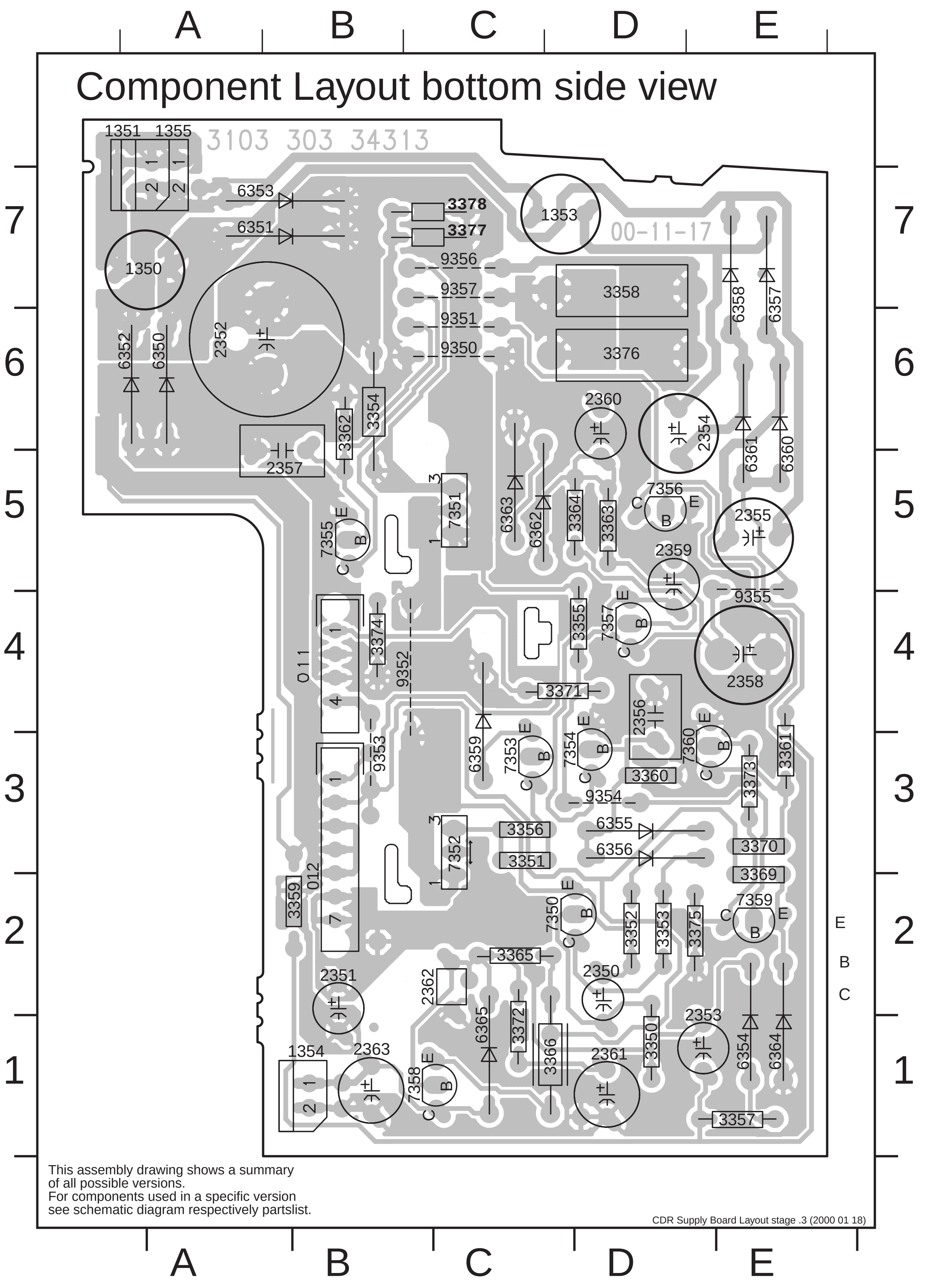
3370
3369
3351
3359
7359
7350
3365
3375
3353
3352
2350
2362
6364
6354
2353
3366
6365
7358
2363
2351
1354
2361
3372
3350
3357

This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

CDR Supply Board Layout stage .3 (2001 01 18)

| | |
|---|---|
| 011 | B4 |
| 012 | B3 |
| 1350 | A7 |
| 1351 | A7 |
| 1353 | D7 |
| 1354 | B1 |
| 1355 | A7 |
| 2350 | D2 |
| 2351 | B2 |
| 2352 | B7 |
| 2353 | E2 |
| 2354 | E5 |
| 2355 | E5 |
| 2356 | D4 |
| 2357 | B5 |
| 2358 | E4 |
| 2359 | D5 |
| 2360 | D6 |
| 2361 | D1 |
| 2362 | C2 |
| 2363 | B1 |
| 3350 | D1 |
| 3351 | C2 |
| 3352 | D2 |
| 3353 | D2 |
| 3354 | B6 |
| 3355 | D4 |
| 3356 | C3 |
| 3357 | E1 |
| 3358 | D7 |
| 3359 | B3 |
| 3360 | D3 |
| 3361 | E3 |
| 3362 | B5 |
| 3363 | D5 |
| 3364 | D5 |
| 3365 | C2 |
| 3366 | D1 |
| 3369 | E2 |
| 3370 | E3 |
| 3371 | D4 |
| 3372 | C1 |
| 3373 | E3 |
| 3374 | B4 |
| 3375 | E2 |
| 3376 | D6 |
| 3377 | C1 |
| 3378 | C1 |
| 6350 | A6 |
| 6351 | A7 |
| 6352 | A6 |
| 6353 | A7 |
| 6354 | E1 |
| 6355 | D3 |
| 6356 | D3 |
| 6357 | E7 |
| 6358 | E7 |
| 6359 | C4 |
| 6360 | E6 |
| 6361 | E6 |
| 6362 | D5 |
| 6363 | C5 |
| 6364 | E1 |
| 6365 | C1 |
| 7350 | D2 |
| 7351 | C5 |
| 7352 | C3 |
| 7353 | C3 |
| 7354 | D3 |
| 7355 | B5 |
| 7356 | D5 |
| 7357 | D4 |
| 7358 | C1 |
| 7359 | E2 |
| 7360 | E3 |
| 9350 | C6 |
| 9351 | C6 |
| 9352 | C4 |
| 9353 | B3 |
| 9354 | D3 |
| 9355 | E4 |
| 9356 | C7 |
| 9357 | C6 |

## Component Layout bottom side view


A
B
C
D
E
7
6
5
4
3
2
1
3103 303 34313
00-11-17
1351
1355
1353
1350
6353
6351
3378
3377
9356
9357
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9350
3358
3376
6358
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6350
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6361
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7351
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6362
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3363
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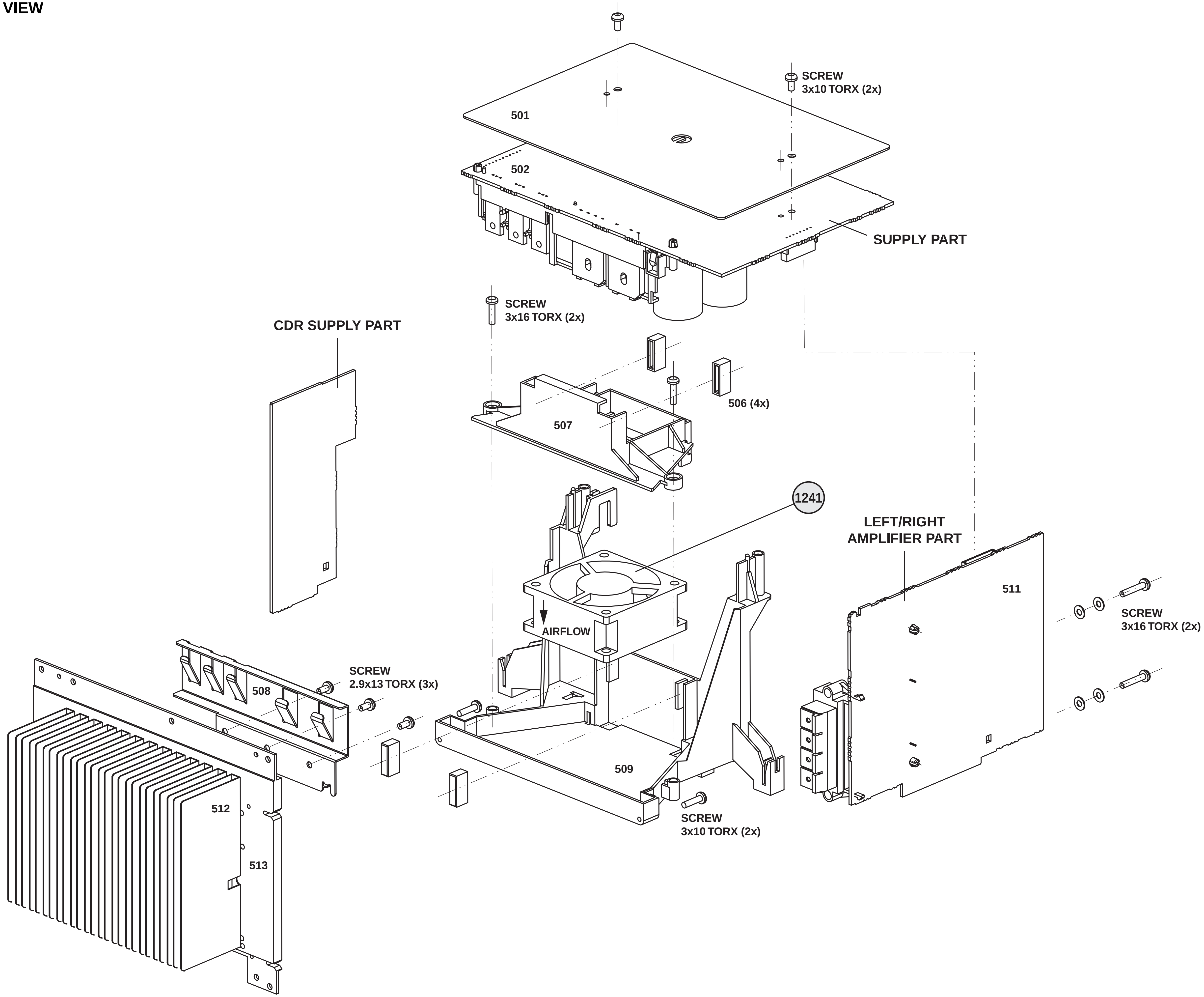
2355
7355
2359
9355
3355
7357
2358
011
3374
9352
3371
2356
7360
6359
7353
7354
3360
3373
3361
9353
9354
6355
6356
3356
3351
7352
3370
3369
012
3359
7350
3352
3353
3375
7359
3365
2351
2362
2350
6365
3372
2353
1354
2363
7358
3366
2361
3350
6354
6364
3357
E
B
C

This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

CDR Supply Board Layout stage .3 (2000 01 18)

## EXPLODED VIEW


501
SCREW
3x10 TORX (2x)
502
SUPPLY PART
SCREW
3x16 TORX (2x)
CDR SUPPLY PART
506 (4x)
507
1241
LEFT/RIGHT
AMPLIFIER PART
511
SCREW
3x16 TORX (2x)
AIRFLOW
SCREW
2.9x13 TORX (3x)
508
509
SCREW
3x10 TORX (2x)
512
513

## ***ELECTRICAL PARTSLIST POWER BOARD***

### MECHANICAL PARTS

| | | |
|---|---|---|
| | 4822 466 93148 | SPACER |
| 401 | 4822 256 10555 | RUCKSACK P5 (L/R-MTX) |
| 401 | 4822 256 10557 | RUCKSACK P5 (L/R-C/S) |
| 401 | 4822 256 10558 | RUCKSACK P5 (L/R) |
| 1241 | 4822 361 11161 | KD1206PTS3, FAN |

### MISCELLANEOUS

| | | |
|---|---|---|
| 1321 | 4822 267 31176 | SPEAKER TERMINAL |
| 1901 | 4822 265 31015⚠ | MAINS SOCKET, IEC |
| 1901 | 4822 265 31016⚠ | MAINS SOCKET, UL |
| 1902 | 4822 272 10269⚠ | VOLTAGE SELECTOR |
| 1903 | 4822 071 52001⚠ | FUSE 200mA/T |
| 1905 | 4822 071 55002⚠ | FUSE T5A |
| 1905 | 4822 252 51123⚠ | FUSE T6,3A |
| 1906 | 4822 071 55002⚠ | FUSE T5A |
| 1907 | 4822 071 55002⚠ | FUSE T5A |
| 1920 | 4822 071 55002⚠ | FUSE T5A |
| 1921 | 4822 071 55002⚠ | FUSE T5A |
| 1922 | 4822 071 55002⚠ | FUSE T5A |
| 1923 | 4822 071 55002⚠ | FUSE T5A |
| 1924 | 4822 071 52502⚠ | FUSE T 2,5A |
| 1925 | 4822 071 51602⚠ | FUSE 1,6A |
| 5903 | 4822 146 11142⚠ | STBY TRANSFORMER, USA |
| 5903 | 4822 146 11143⚠ | STBY TRANSFORMER, EUROPE |
| 5903 | 4822 146 11144⚠ | STBY TRANSFORMER, OVERSEA |
| 5905 | 4822 280 10382⚠ | STAND BY RELAIS, SDT-SS-109DM |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2251 | 5322 121 42578 | 100nF | 10% | 100V |
| 2252 | 5322 121 42578 | 100nF | 10% | 100V |
| 2253 | 5322 121 42578 | 100nF | 10% | 100V |
| 2254 | 4822 121 43526 | 47nF | 5% | 100V |
| 2255 | 4822 121 43526 | 47nF | 5% | 100V |
| 2256 | 4822 121 43526 | 47nF | 5% | 100V |
| 2257 | 4822 124 12423 | 4700µF | 20% | 63V |
| 2258 | 4822 124 12423 | 4700µF | 20% | 63V |
| 2260 | 4822 124 80415 | 4700µF | 20% | 50V |
| 2262 | 4822 124 80415 | 4700µF | 20% | 50V |
| 2263 | 5322 121 42386 | 100nF | 5% | 63V |
| 2264 | 5322 121 42386 | 100nF | 5% | 63V |
| 2265 | 4822 124 80563 | 4700µF | 20% | 35V |
| 2267 | 4822 124 40255 | 100µF | 20% | 50V |
| 2268 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2269 | 4822 121 51387 | 10nF | 20% | 16V |
| 2269 | 4822 122 10577 | 3,3nF | 10% | 16V |
| 2269 | 4822 122 33197 | 1nF | 10% | 50V |
| 2270 | 4822 124 40248 | 10µF | 20% | 63V |
| 2270 | 4822 124 41579 | 10µF | 20% | 50V |
| 2271 | 4822 124 40433 | 47µF | 20% | 25V |
| 2279 | 5322 121 42386 | 100nF | 5% | 63V |
| 2280 | 4822 124 12328 | 6800µF | 20% | 16V |
| 2282 | 4822 124 40248 | 10µF | 20% | 63V |
| 2282 | 4822 124 41579 | 10µF | 20% | 50V |
| 2289 | 4822 124 21913 | 1µF | 20% | 63V |
| 2289 | 4822 124 40242 | 1µF | 20% | 63V |
| 2290 | 4822 124 40207 | 100µF | 20% | 25V |
| 2300 | 4822 121 51387 | 10nF | 20% | 16V |
| 2301 | 4822 124 41584 | 100µF | 20% | 10V |
| 2303 | 4822 121 41857 | 10nF | 5% | 250V |
| 2321 | 4822 122 33847 | 10pF | 5% | 50V |
| 2322 | 4822 122 33847 | 10pF | 5% | 50V |
| 2323 | 4822 124 22652 | 2,2µF | 20% | 50V |
| 2323 | 4822 124 41576 | 2,2µF | 20% | 50V |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2324 | 4822 124 22652 | 2,2µF | 20% | 50V |
| 2324 | 4822 124 41576 | 2,2µF | 20% | 50V |
| 2325 | 4822 122 33532 | 3,3nF | 5% | 50V |
| 2326 | 4822 122 33532 | 3,3nF | 5% | 50V |
| 2327 | 5322 122 32334 | 220pF | 10% | 100V |
| 2328 | 5322 122 32334 | 220pF | 10% | 100V |
| 2329 | 5322 122 32311 | 470pF | 10% | 100V |
| 2330 | 5322 122 32311 | 470pF | 10% | 100V |
| 2331 | 5322 122 32261 | 4,7nF | 10% | 100V |
| 2333 | 4822 124 81151 | 22µF | 20% | 50V |
| 2334 | 4822 124 81151 | 22µF | 20% | 50V |
| 2335 | 4822 122 33847 | 10pF | 5% | 50V |
| 2336 | 4822 122 33847 | 10pF | 5% | 50V |
| 2341 | 4822 126 11585 | 22nF | 20% | 50V |
| 2342 | 4822 126 11585 | 22nF | 20% | 50V |
| 2343 | 4822 124 22652 | 2,2µF | 20% | 50V |
| 2343 | 4822 124 41579 | 10µF | 20% | 50V |
| 2344 | 4822 124 40764 | 22µF | 20% | 100V |
| 2345 | 4822 124 40764 | 22µF | 20% | 100V |
| 2346 | 4822 124 40248 | 10µF | 20% | 63V |
| 2346 | 4822 124 41579 | 10µF | 20% | 50V |
| 2347 | 4822 124 40248 | 10µF | 20% | 63V |
| 2347 | 4822 124 41579 | 10µF | 20% | 50V |
| 2348 | 4822 124 81043 | 10µF | 20% | 100V |
| 2349 | 4822 124 81043 | 10µF | 20% | 100V |
| 2350 | 5322 121 42386 | 100nF | 5% | 63V |
| 2351 | 5322 121 42386 | 100nF | 5% | 63V |
| 2352 | 4822 124 40181 | 220µF | 20% | 10V |
| 2353 | 5322 121 42386 | 100nF | 5% | 63V |
| 2354 | 5322 121 42386 | 100nF | 5% | 63V |
| 2355 | 5322 122 32261 | 4,7nF | 10% | 100V |
| 2356 | 5322 122 32261 | 4,7nF | 10% | 100V |
| 2365 | 4822 126 12785 | 47nF | 20% | 50V |
| 2902 | 4822 121 43526 | 47nF | 5% | 100V |
| 2903 | 4822 121 43526 | 47nF | 5% | 100V |
| 2904 | 4822 124 40255 | 100µF | 20% | 50V |
| 2905 | 4822 124 40207 | 100µF | 20% | 25V |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3251 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3252 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3254 | 4822 116 52228 | 680Ω | 5% | 0,5W |
| 3255 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3259 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3259 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3260 | 4822 117 11342 | 0,33Ω | 5% | 2W |
| 3261 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3261 | 4822 116 83876 | 270Ω | 5% | 0.16W |
| 3262 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3263 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3264 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3265 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3266 | 4822 116 52228 | 680Ω | 5% | 0,5W |
| 3267 | 4822 116 52276 | 3,9kΩ | 5% | 0,5W |
| 3268 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3269 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3270 | 4822 117 11342 | 0,33Ω | 5% | 2W |
| 3271 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3272 | 4822 116 52263 | 2,7kΩ | 5% | 0,5W |
| 3272 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3273 | 4822 116 52244 | 15kΩ | 5% | 0,5W |
| 3274 | 4822 050 23303 | 33kΩ | 1% | 0,6W |

## ***ELECTRICAL PARTSLIST POWER BOARD***

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3275 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3278 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3280 | 4822 116 52239 | 120kΩ | 5% | 0,5W |
| 3281 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3281 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3282 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3285 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3286 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3287 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3288 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3289 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3290 | 4822 117 12063 | 10kΩ NTC | | |
| 3295 | 4822 116 83876 | 270Ω | 5% | 0.16W |
| 3296 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3298 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3299 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3300 | 4822 052 10568 | 5,6Ω | 5% | 0,33W |
| 3302 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3304 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3305 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3306 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3306 | 4822 116 83882 | 39kΩ | 5% | 0,5W |
| 3307 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3309 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3309 | 4822 116 52271 | 33kΩ | 5% | 0,16W |
| 3312 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3312 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3313 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3315 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3315 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3316 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3317 | 4822 052 10109 | 10Ω | 5% | NFR |
| 3317 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3321 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3321 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3322 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3322 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3323 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3324 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3324 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3325 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3325 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3326 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3326 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3327 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3328 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3329 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3329 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3330 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3330 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3331 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3332 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3333 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3334 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3335 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3335 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3336 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3336 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3337 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3338 | 4822 050 11002 | 1kΩ | 5% | 0,2W |

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3339 | 4822 113 80633 | 0,1Ω | 5% | 3W |
| 3340 | 4822 113 80633 | 0,1Ω | 5% | 3W |
| 3341 | 4822 117 11744 | 0,22Ω | 5% | 1W |
| 3342 | 4822 117 11744 | 0,22Ω | 5% | 1W |
| 3343 | 4822 117 11744 | 0,22Ω | 5% | 1W |
| 3344 | 4822 117 11744 | 0,22Ω | 5% | 1W |
| 3345 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3346 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3346 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3347 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3347 | 4822 116 52271 | 33kΩ | 5% | 0,16W |
| 3348 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3350 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3351 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3352 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3353 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3355 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3356 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3357 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3358 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3363 | 4822 053 10478 | 4,7Ω | 5% | 1W |
| 3364 | 4822 053 10478 | 4,7Ω | 5% | 1W |
| 3365 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3365 | 4822 116 52304 | 82kΩ | 5% | 0,5W |
| 3366 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3366 | 4822 116 52304 | 82kΩ | 5% | 0,5W |
| 3367 | 4822 116 52304 | 82kΩ | 5% | 0,5W |
| 3368 | 4822 116 52304 | 82kΩ | 5% | 0,5W |
| 3369 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3370 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3383 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3383 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3383 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3384 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3384 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3384 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3385 | 4822 052 10108 | 1Ω | 5% | 0,33W |
| 3387 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3388 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3391 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3392 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3901 | 4822 053 21106 | 10MΩ | 5% | 0,5W |
| 3902 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3903 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3904 | 4822 116 52244 | 15kΩ | 5% | 0,5W |
| 3904 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3905 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3906 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3908 | 4822 053 10471 | 470Ω | 5% | 1W |
| 3920 | 4822 052 10108 | 1Ω | 5% | 0,33W |

COILS

| | | |
|---|---|---|
| 5321 | 4822 157 70599 | 1µH |
| 5322 | 4822 157 70599 | 1µH |
| 5901 | 4822 157 11832 | 400µH |
| 5902 | 4822 157 11628 | MAINS CHOKE |

DIODES

| | | |
|---|---|---|
| 6251 | 4822 130 11139 | GBU8D |
| 6251 | 4822 130 83302 | BRIDGE RECTIFIER GBU4D |
| 6252 | 4822 130 31878 | 1N4003G |
| 6252 | 5322 130 80686 | 1N5392 |
| 6253 | 4822 130 31878 | 1N4003G |

## *ELECTRICAL PARTSLIST POWER BOARD*

DIODES

| | | |
|---|---|---|
| 6255 | 4822 130 11139 | GBU8D |
| 6260 | 4822 130 31878 | 1N4003G |
| 6260 | 5322 130 80686 | 1N5392 |
| 6261 | 4822 130 31878 | 1N4003G |
| 6261 | 5322 130 80686 | 1N5392 |
| 6262 | 4822 130 31878 | 1N4003G |
| 6262 | 5322 130 80686 | 1N5392 |
| 6263 | 4822 130 31878 | 1N4003G |
| 6263 | 5322 130 80686 | 1N5392 |
| 6264 | 4822 130 61219 | BZX79-C10 |
| 6264 | 9331 668 80133 | DIO REG BZX79-B11 |
| 6269 | 4822 130 34281 | BZX79-C15 |
| 6270 | 4822 130 30621 | 1N4148 |
| 6271 | 4822 130 30621 | 1N4148 |
| 6281 | 4822 130 31878 | 1N4003G |
| 6284 | 4822 130 34173 | BZX79-B5V6 |
| 6289 | 4822 130 34281 | BZX79-C15 |
| 6290 | 4822 130 34281 | BZX79-C15 |
| 6292 | 4822 130 30621 | 1N4148 |
| 6293 | 4822 130 34382 | BZX79-B8V2 |
| 6294 | 4822 130 31878 | 1N4003G |
| 6294 | 5322 130 80686 | 1N5392 |
| 6295 | 4822 130 30621 | 1N4148 |
| 6298 | 4822 130 34278 | BZX79-C6V8 |
| 6299 | 4822 130 30621 | 1N4148 |
| 6301 | 4822 130 30621 | 1N4148 |
| 6302 | 5322 130 31504 | BZX79-B3V3 |
| 6325 | 4822 130 34278 | BZX79-C6V8 |
| 6326 | 4822 130 34278 | BZX79-C6V8 |
| 6333 | 4822 130 34281 | BZX79-C15 |
| 6334 | 4822 130 34281 | BZX79-C15 |
| 6337 | 4822 130 30621 | 1N4148 |
| 6339 | 4822 130 30621 | 1N4148 |
| 6360 | 4822 130 34281 | BZX79-C15 |
| 6900 | 4822 130 31878 | 1N4003G |
| 6901 | 4822 130 31878 | 1N4003G |
| 6902 | 4822 130 31878 | 1N4003G |
| 6903 | 4822 130 31878 | 1N4003G |
| 6904 | 4822 130 31878 | 1N4003G |
| 6905 | 4822 130 30621 | 1N4148 |
| 6906 | 4822 130 30621 | 1N4148 |
| 6908 | 4822 130 34382 | BZX79-B8V2 |
| 6909 | 4822 130 32245 | BYV10-40 |
| 6910 | 4822 130 31878 | 1N4003G |
| 6911 | 4822 130 30621 | 1N4148 |
| 6912 | 4822 130 30621 | 1N4148 |

TRANSISTORS

| | | |
|---|---|---|
| 7251 | 4822 130 10812 | BDX53BFI |
| 7251 | 9322 139 23687 | BDX53BFP |
| 7252 | 4822 130 40959 | BC547B |
| 7253 | 4822 130 40959 | BC547B |
| 7253 | 4822 130 44568 | BC557B |
| 7255 | 4822 130 40959 | BC547B |
| 7260 | 4822 130 40959 | BC547B |
| 7263 | 4822 130 40959 | BC547B |
| 7263 | 4822 130 40981 | BC337-25 |
| 7265 | 4822 130 41691 | BC556B |
| 7266 | 4822 130 44568 | BC557B |
| 7268 | 4822 130 40959 | BC547B |
| 7280 | 4822 130 40959 | BC547B |
| 7282 | 4822 130 41246 | BC327-25 |
| 7282 | 4822 130 41327 | BC327-40 |
| 7286 | 4822 130 41246 | BC327-25 |
| 7286 | 4822 130 41327 | BC327-40 |
| 7290 | 4822 130 41246 | BC327-25 |
| 7323 | 4822 130 44461 | BC546B |
| 7324 | 4822 130 44461 | BC546B |
| 7325 | 4822 130 40959 | BC547B |
| 7326 | 4822 130 40959 | BC547B |
| 7327 | 4822 130 44461 | BC546B |
| 7350 | 4822 130 41691 | BC556B |
| 7901 | 4822 130 41246 | BC327-25 |
| 7902 | 4822 130 40959 | BC547B |

INTEGRATED CIRCUITS

| | | |
|---|---|---|
| 7281 | 4822 209 31841 | L7805CP |
| 7329 | 4822 209 17383 | POWER AMPLIFIER STK496-090 |
| 7329 | 9322 131 91682 | POWER AMPLIFIER STK407-090 |

## ATTENTION!

**In course of production different types of power amplifier have been used.**
**It is not allowed to use STK496 instead of STK407 respectively otherwise!**

Power Amplifier STK496-xxx has to be replaced by 4822 209 17383
Power Amplifier STK407-xxx has to be replaced by 9322 131 91682

## *ELECTRICAL PARTSLIST POWER SUPPLY CDR BOARD*

### MISCELLANEOUS

| | | |
|---|---|---|
| 1350 | 4822 071 52502⚠ | FUSE T 2,5A |
| 1353 | 4822 071 53151⚠ | FUSE 315mA |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2350 | 4822 124 11947 | 10µF | 20% | 16V |
| 2351 | 4822 124 40433 | 47µF | 20% | 25V |
| 2352 | 4822 124 12328 | 6800µF | 20% | 16V |
| 2353 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2354 | 4822 124 80791 | 470µF | 20% | 16V |
| 2355 | 4822 124 80791 | 470µF | 20% | 16V |
| 2356 | 5322 121 42386 | 100nF | 5% | 63V |
| 2357 | 5322 121 42386 | 100nF | 5% | 63V |
| 2358 | 4822 124 81144 | 1000µF | 20% | 16V |
| 2359 | 4822 124 40433 | 47µF | 20% | 25V |
| 2360 | 4822 124 41584 | 100µF | 20% | 10V |
| 2361 | 4822 124 23052 | 100µF | 20% | 16V |
| 2363 | 4822 124 23052 | 100µF | 20% | 16V |

### RESISTORS

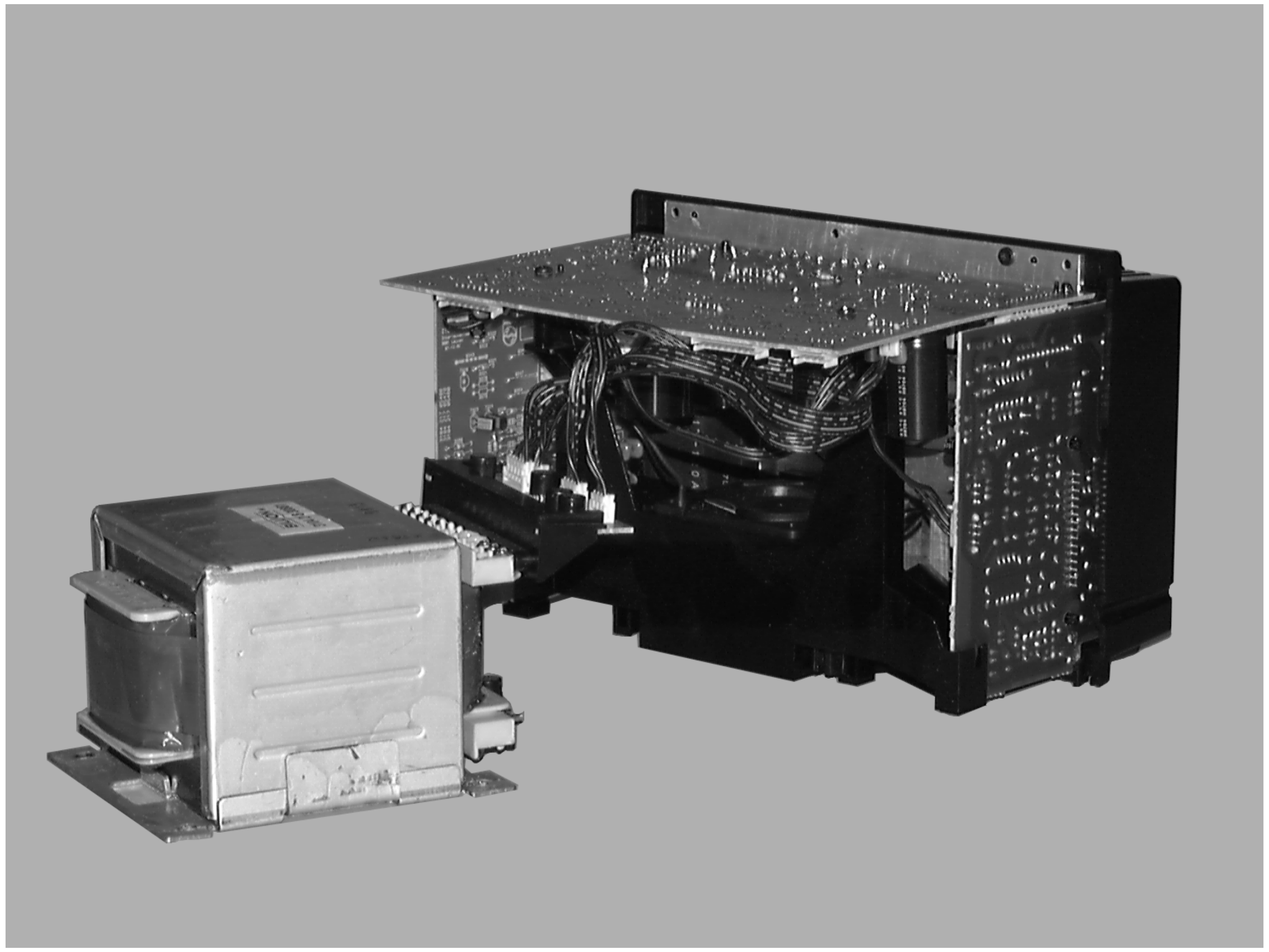
| | | | | |
|---|---|---|---|---|
| 2362 | 4822 117 12063 | 10kΩ | | NTC |
| 3350 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3351 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3352 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3353 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3354 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3355 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3356 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3357 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3358 | 4822 053 11151⚠ | 150Ω | 5% | 2W |
| 3359 | 4822 050 21101 | 110Ω | 1% | 0,6W |
| 3360 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3361 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3362 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3363 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3364 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3365 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3366 | 4822 052 10568⚠ | 5,6Ω | 5% | 0,33W |
| 3369 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3370 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |
| 3371 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3372 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3373 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3374 | 4822 116 83882 | 39kΩ | 5% | 0,5W |
| 3375 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3376 | 4822 053 11151⚠ | 150Ω | 5% | 2W |
| 3377 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |
| 3378 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |

### DIODES

| | | |
|---|---|---|
| 6350 | 5322 130 80686 | 1N5392 |
| 6351 | 5322 130 80686 | 1N5392 |
| 6352 | 5322 130 80686 | 1N5392 |
| 6353 | 5322 130 80686 | 1N5392 |
| 6354 | 3198 010 53980 | DIO REG BZX79-B3V9 |
| 6355 | 4822 130 34173 | BZX79-B5V6 |
| 6356 | 5322 130 31504 | BZX79-B3V3 |
| 6357 | 4822 130 31878 | 1N4003G |
| 6358 | 4822 130 31878 | 1N4003G |
| 6359 | 4822 130 30621 | 1N4148 |
| 6360 | 4822 130 31878 | 1N4003G |
| 6361 | 4822 130 31878 | 1N4003G |
| 6362 | 4822 130 34174 | BZX79-B4V7 |
| 6363 | 4822 130 31981 | BZX79-B3V9 |
| 6364 | 4822 130 34233 | BZX79-B5V1 |
| 6365 | 4822 130 31981 | BZX79-B3V9 |

### TRANSISTORS

| | | |
|---|---|---|
| 7350 | 9336 500 90126 | BC557C |
| 7351 | 4822 130 40995 | BD438 |
| 7352 | 4822 130 40995 | BD438 |
| 7353 | 4822 130 44503 | BC547C |
| 7354 | 4822 130 44503 | BC547C |
| 7355 | 4822 130 41344 | BC337-40 |
| 7356 | 4822 130 44503 | BC547C |
| 7357 | 4822 130 41327 | BC327-40 |
| 7358 | 4822 130 41246 | BC327-25 |
| 7359 | 9336 500 90126 | BC557C |
| 7360 | 4822 130 44503 | BC547C |



# POWER 5-VA Module

## (only for /37)

**Stage .8**

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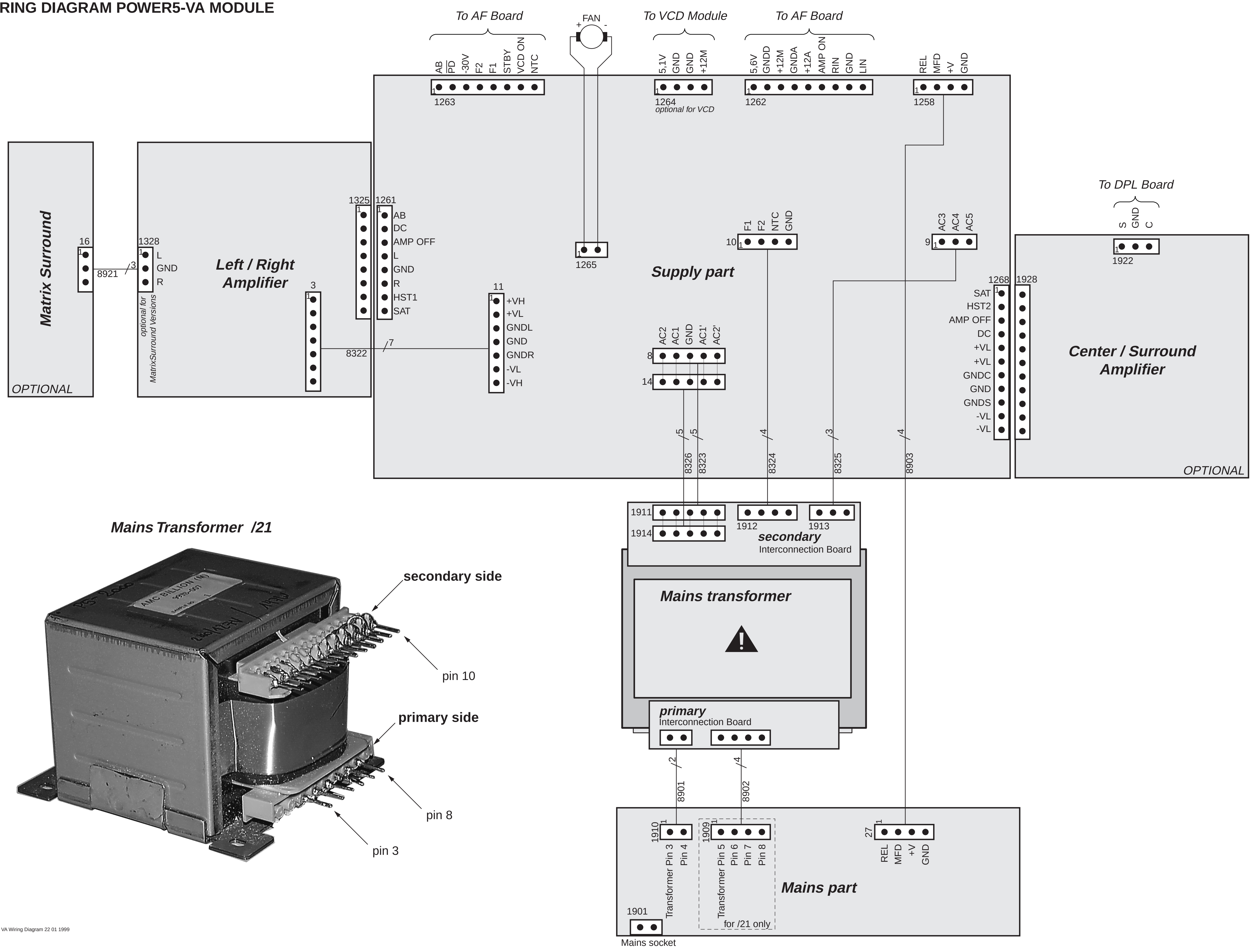
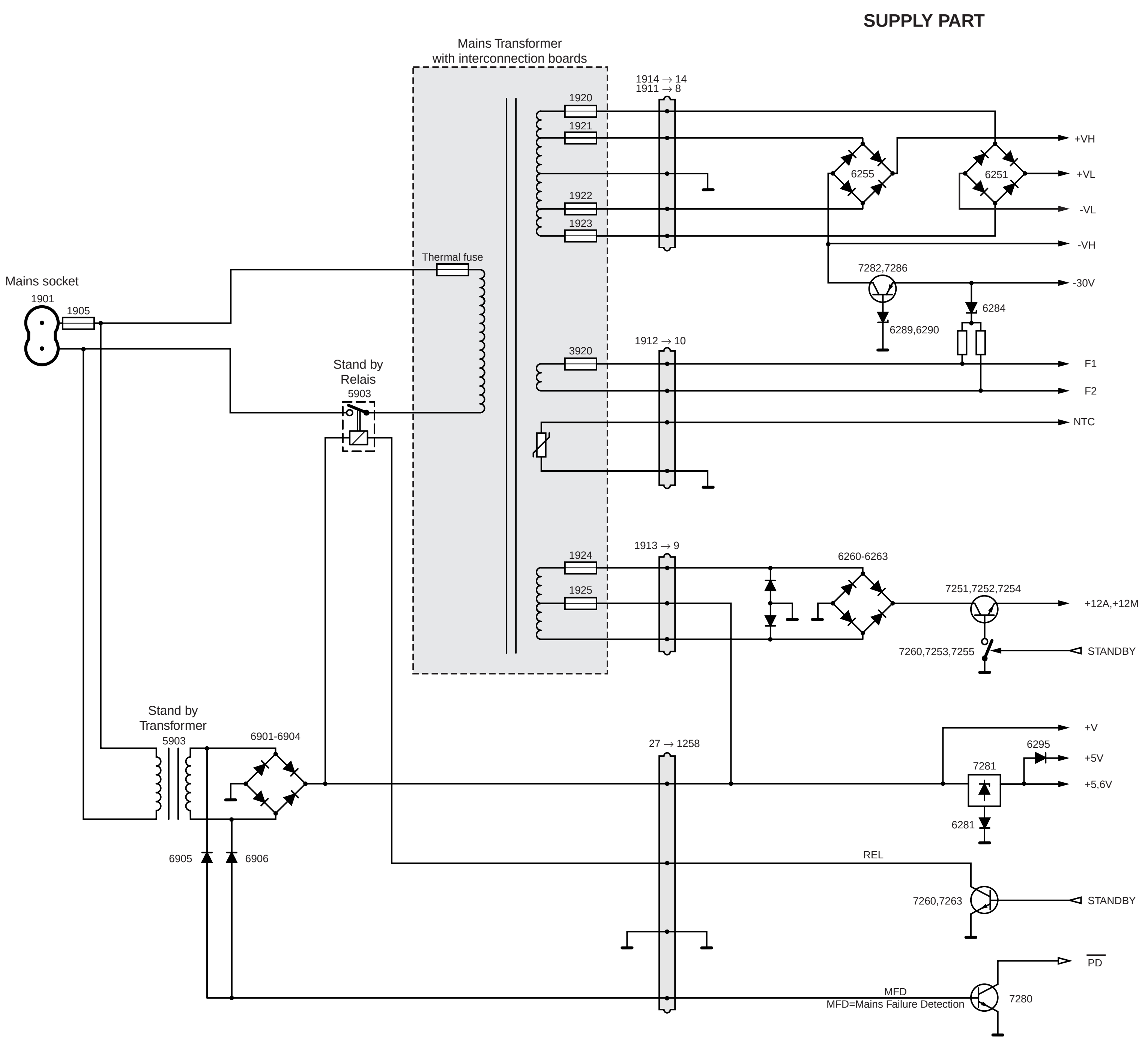
## Technical remarks

# WIRING DIAGRAM POWER5-VA MODULE

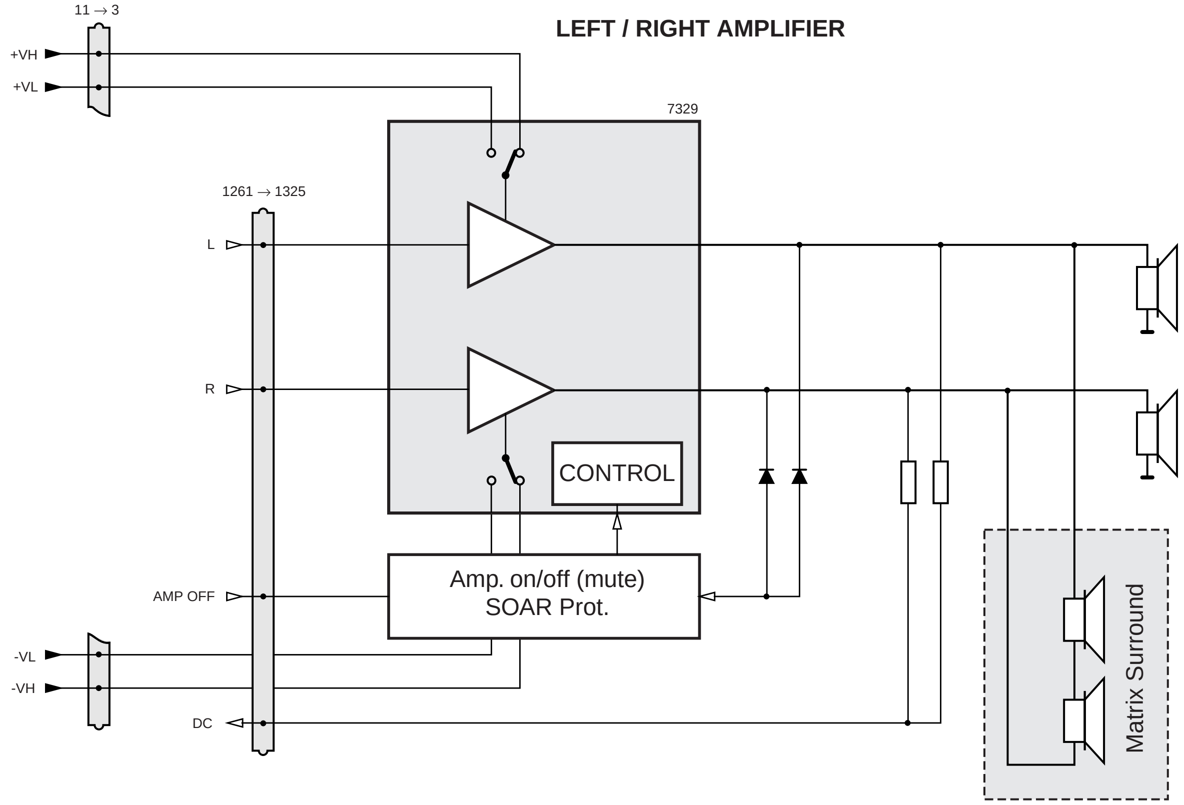

To AF Board
AB
PD
-30V
F2
F1
STBY
VCD ON
NTC
1263
FAN
+
-
To VCD Module
5,1V
GND
GND
+12M
1264
optional for VCD
To AF Board
5,6V
GNDD
+12M
GNDA
+12A
AMP ON
RIN
GND
LIN
1262
REL
MFD
+V
GND
1258
Matrix Surround
OPTIONAL
16
8921
3
1328
L
GND
R
optional for MatrixSurround Versions
Left / Right Amplifier
1325
1261
AB
DC
AMP OFF
L
GND
R
HST1
SAT
3
8322
7
11
+VH
+VL
GNDL
GND
GNDR
-VL
-VH
1265
Supply part
F1
F2
NTC
GND
10
AC3
AC4
AC5
9
AC2
AC1
GND
AC1'
AC2'
8
14
5
5
4
3
4
8326
8323
8324
8325
8903
To DPL Board
S
GND
C
1922
1268
1928
SAT
HST2
AMP OFF
DC
+VL
+VL
GNDC
GND
GNDS
-VL
-VL
Center / Surround Amplifier
OPTIONAL
1911
1914
1912
1913
secondary
Interconnection Board
Mains transformer
primary
Interconnection Board
2
4
8901
8902
1910
Transformer Pin 3
Pin 4
1909
Transformer Pin 5
Pin 6
Pin 7
Pin 8
for /21 only
27
REL
MFD
+V
GND
Mains part
1901
Mains socket
Mains Transformer /21
secondary side
pin 10
primary side
pin 8
pin 3

# BLOCK DIAGRAM 120/130W VERSION



SUPPLY PART

Mains Transformer
with interconnection boards
Mains socket
1901
1905
Thermal fuse
Stand by
Relais
5903
1920
1921
1922
1923
1914 → 14
1911 → 8
6255
6251
+VH
+VL
-VL
-VH
7282,7286
6284
6289,6290
-30V
3920
1912 → 10
F1
F2
NTC
1924
1925
1913 → 9
6260-6263
7251,7252,7254
+12A,+12M
7260,7253,7255
STANDBY
Stand by
Transformer
5903
6901-6904
27 → 1258
+V
6295
+5V
7281
+5,6V
6281
6905
6906
REL
7260,7263
STANDBY
PD
MFD
MFD=Mains Failure Detection
7280

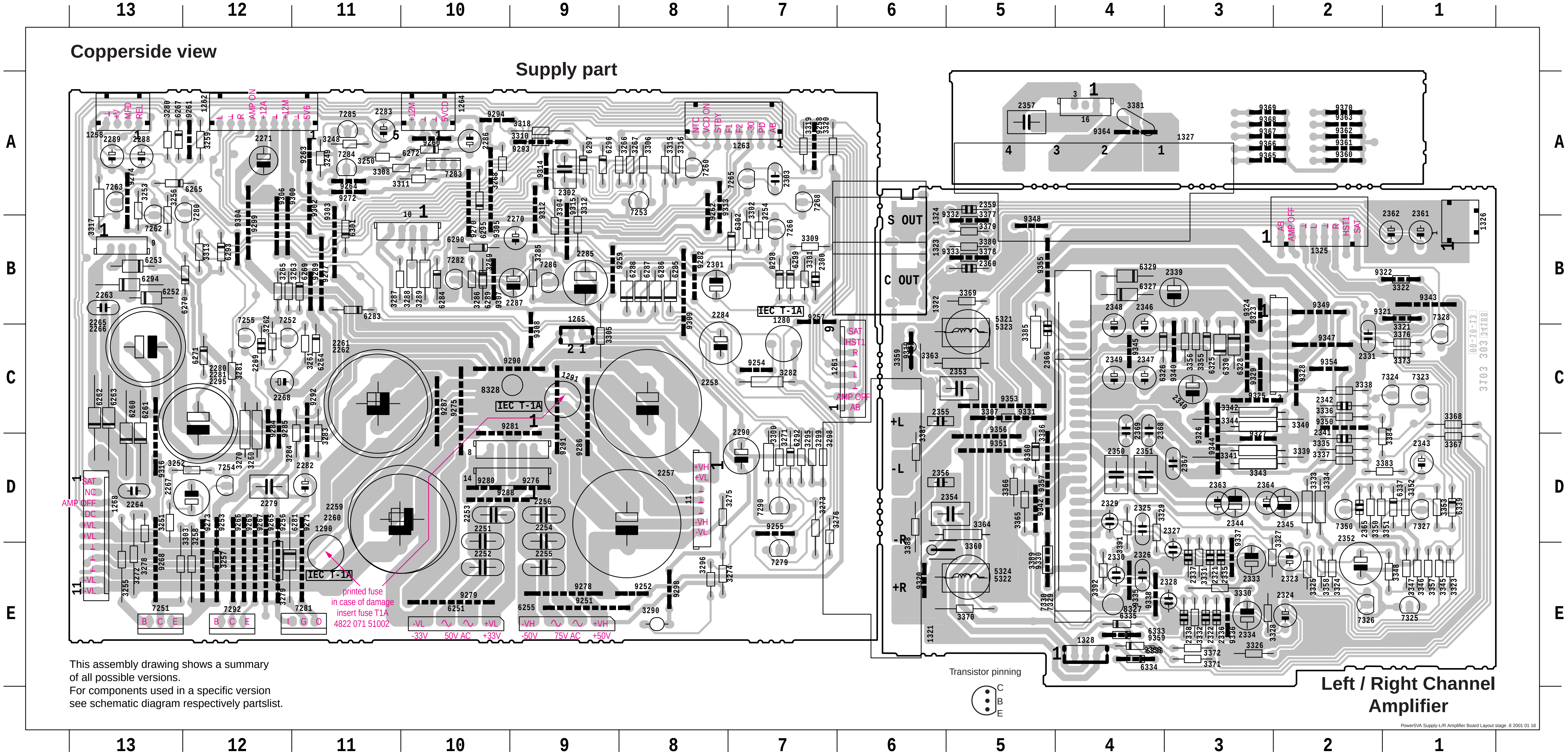


LEFT / RIGHT AMPLIFIER

11 → 3
+VH
+VL
7329
1261 → 1325
L
R
CONTROL
Amp. on/off (mute)
SOAR Prot.
AMP OFF
-VL
-VH
DC
Matrix Surround

# COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9360 A 2 | 9314 A 9 | 9291 C 9 | 9272 A 11 | 9254 C 7 | 7263 A 13 | 6292 D 7 | 6263 C 13 | 3310 A 9 | 3287 B 11 | 3268 A 10 | 3250 A 11 | 2281 C 12 | 2257 D 8 | 14 D 9 | 9348 B 5 | 9327 D 3 | 7324 C 1 | 5322 E 5 | 3372 E 3 | 3352 D 1 | 3334 D 2 | 2367 D 3 | 2348 C 4 | 2330 E 4 | 3 C 2 |
| 9361 A 2 | 9315 B 9 | 9292 C 11 | 9273 E 12 | 9255 D 7 | 7265 A 7 | 6293 B 12 | 6264 C 11 | 3311 A 10 | 3288 B 10 | 3269 B 10 | 3251 D 13 | 2282 D 11 | 2258 C 8 | 1258 A 13 | 9349 B 2 | 9328 C 2 | 7325 E 1 | 5323 C 5 | 3373 C 1 | 3353 D 1 | 3335 D 2 | 2368 C 4 | 2349 C 4 | 2331 C 2 | 1321 D 6 |
| 9362 A 2 | 9316 D 13 | 9293 A 9 | 9274 A 13 | 9256 E 12 | 7266 B 7 | 6294 B 13 | 6265 A 13 | 3312 B 9 | 3289 B 10 | 3270 C 12 | 3252 D 12 | 2283 A 11 | 2259 D 10 | 1261 C 6 | 9350 C 2 | 9329 C 3 | 7326 E 2 | 5324 E 5 | 3376 C 1 | 3355 C 3 | 3336 C 2 | 2369 C 4 | 2350 D 4 | 2333 E 3 | 1322 B 6 |
| 9363 A 2 | T256 C 13 | 9294 A 10 | 9275 C 10 | 9258 A 7 | 7268 A 7 | 6295 A 10 | 6267 A 13 | 3313 B 12 | 3290 E 8 | 3271 D 7 | 3253 A 13 | 2284 C 8 | 2260 D 11 | 1262 A 12 | 9351 D 5 | 9330 E 5 | 7327 D 1 | 6325 C 3 | 3377 B 5 | 3356 C 3 | 3337 D 2 | 3307 C 5 | 2351 D 4 | 2334 E 3 | 1323 B 6 |
| 9364 A 4 | T257 C 12 | 9298 E 8 | 9276 D 9 | 9259 B 9 | 7280 A 12 | 6296 A 9 | 6269 B 11 | 3315 A 8 | 3295 D 7 | 3272 E 13 | 3254 B 7 | 2285 B 9 | 2261 C 11 | 1263 A 7 | 9353 C 5 | 9331 C 5 | 7328 C 1 | 6326 C 4 | 3378 B 5 | 3357 E 1 | 3338 C 2 | 3321 B 1 | 2352 E 2 | 2335 E 3 | 1324 B 6 |
| 9365 A 3 | T258 D 13 | 9299 B 12 | 9277 B 11 | 9260 A 10 | 7281 E 11 | 6297 A 9 | 6270 B 12 | 3316 A 8 | 3296 E 8 | 3273 D 7 | 3255 E 13 | 2286 A 10 | 2262 C 11 | 1264 A 10 | 9354 C 2 | 9332 B 5 | 7329 D 4 | 6327 B 4 | 3379 B 5 | 3358 E 2 | 3339 D 2 | 3322 B 1 | 2353 C 5 | 2336 E 3 | 1325 B 2 |
| 9366 A 3 | T265 B 10 | 9300 B 12 | 9278 E 9 | 9261 A 12 | 7282 B 10 | 6298 B 7 | 6271 C 12 | 3317 A 13 | 3298 D 7 | 3274 E 8 | 3256 B 13 | 2287 B 9 | 2263 B 13 | 1265 C 9 | 9355 B 5 | 9333 B 5 | 7330 C 4 | 6328 C 3 | 3380 B 5 | 3359 C 6 | 3340 C 2 | 3323 E 1 | 2354 D 5 | 2337 E 3 | 1326 B 1 |
| 9367 A 3 | T305 A 11 | 9302 A 11 | 9279 E 10 | 9262 A 8 | 7283 A 10 | 6299 B 7 | 6272 A 10 | 3318 A 9 | 3299 D 7 | 3275 D 8 | 3257 E 12 | 2288 A 13 | 2264 D 13 | 1268 D 13 | 9356 D 5 | 9335 E 4 | 7350 D 2 | 6329 B 4 | 3383 D 1 | 3360 E 6 | 3341 D 3 | 3324 E 2 | 2355 C 6 | 2338 E 3 | 1328 E 4 |
| 9368 A 3 | T312 A 7 | 9303 B 11 | 9280 D 10 | 9263 A 11 | 7284 A 11 | 6301 B 11 | 6281 E 12 | 3319 A 7 | 3300 D 7 | 3278 D 13 | 3258 E 12 | 2289 A 13 | 2265 C 13 | 1280 C 7 | 9357 D 5 | 9336 E 3 | 8327 E 4 | 6330 C 3 | 3384 D 1 | 3363 C 5 | 3342 C 3 | 3325 E 2 | 2356 D 6 | 2339 B 3 | 2321 E 3 |
| 9369 A 3 | T314 A 10 | 9304 B 12 | 9281 D 10 | 9264 A 11 | 7285 A 11 | 6302 B 7 | 6283 B 11 | 3320 A 7 | 3301 B 7 | 3279 E 12 | 3259 A 12 | 2290 D 7 | 2266 C 13 | 1290 E 11 | 9358 E 4 | 9337 E 3 | 9319 C 6 | 6333 E 4 | 3385 C 5 | 3364 D 5 | 3343 D 3 | 3326 E 3 | 2359 A 5 | 2340 C 3 | 2322 E 3 |
| 9370 A 2 | T315 B 9 | 9305 A 10 | 9284 C 12 | 9265 E 12 | 7286 B 9 | 7251 E 13 | 6284 B 10 | 6251 E 10 | 3302 B 7 | 3280 A 13 | 3260 C 12 | 2295 C 12 | 2267 D 12 | 1291 C 9 | 9359 E 4 | 9338 E 4 | 9320 E 6 | 6334 E 4 | 3386 D 5 | 3365 D 5 | 3344 C 3 | 3327 E 3 | 2360 B 5 | 2341 D 2 | 2323 E 2 |
| | T316 A 10 | 9306 B 12 | 9285 C 12 | 9266 E 12 | 7290 D 7 | 7252 C 12 | 6285 B 8 | 6252 B 13 | 3303 E 13 | 3281 C 12 | 3261 C 11 | 2300 B 7 | 2268 C 12 | 2251 D 10 | T321 A 1 | 9340 C 3 | 9321 B 1 | 6335 E 4 | 3387 D 6 | 3366 D 5 | 3345 E 1 | 3328 E 3 | 2361 B 1 | 2342 C 2 | 2324 E 2 |
| ADD | ---- | 9307 B 10 | 9286 C 9 | 9267 E 12 | 7292 E 12 | 7253 A 8 | 6286 B 8 | 6253 B 13 | 3304 B 9 | 3282 C 7 | 3262 C 12 | 2301 B 8 | 2269 C 12 | 2252 E 10 | ---- | 9342 D 5 | 9322 B 1 | 6336 E 4 | 3388 D 6 | 3367 D 1 | 3346 E 1 | 3329 D 4 | 2362 B 1 | 2343 D 1 | 2325 D 4 |
| 3276 D 6 | 16 A 4 | 9308 C 9 | 9287 C 10 | 9268 E 13 | 8328 C 9 | 7254 D 12 | 6287 B 8 | 6255 E 9 | 3305 C 9 | 3283 D 11 | 3263 B 12 | 2302 A 9 | 2270 B 9 | 2253 D 10 | 8 D 9 | 9343 B 1 | 9323 B 3 | 6337 D 1 | 3389 E 5 | 3368 C 1 | 3347 E 1 | 3330 E 3 | 2363 D 3 | 2344 D 3 | 2326 E 4 |
| 7279 D 7 | 1327 A 4 | 9309 B 8 | 9288 D 10 | 9269 E 12 | 9251 E 9 | 7255 C 12 | 6288 B 8 | 6260 D 13 | 3306 A 8 | 3284 D 11 | 3265 B 12 | 2303 A 7 | 2271 A 12 | 2254 D 9 | 9 B 13 | 9344 D 3 | 9324 C 3 | 6339 D 1 | 3391 D 4 | 3369 B 5 | 3348 E 1 | 3331 E 3 | 2364 D 3 | 2345 D 2 | 2327 E 3 |
| 9257 B 7 | 2357 A 5 | 9312 A 9 | 9289 B 11 | 9270 A 10 | 9252 E 8 | 7260 A 8 | 6289 B 10 | 6261 D 13 | 3308 A 10 | 3285 B 9 | 3266 A 8 | 3248 A 11 | 2279 D 12 | 2255 E 9 | 10 B 10 | 9345 C 4 | 9325 C 3 | 6360 D 5 | 3392 E 4 | 3370 E 5 | 3350 D 2 | 3332 E 3 | 2365 D 2 | 2346 C 4 | 2328 E 3 |
| 9282 B 8 | 3381 A 4 | 9313 A 8 | 9290 C 10 | 9271 E 11 | 9253 E 12 | 7262 B 13 | 6290 B 10 | 6262 C 13 | 3309 B 7 | 3286 B 10 | 3267 A 8 | 3249 A 11 | 2280 C 12 | 2256 D 9 | 11 D 8 | 9347 C 2 | 9326 C 3 | 7323 C 1 | 5321 C 5 | 3371 E 3 | 3351 D 2 | 3333 D 2 | 2366 C 5 | 2347 C 4 | 2329 D 4 |



Copperside view

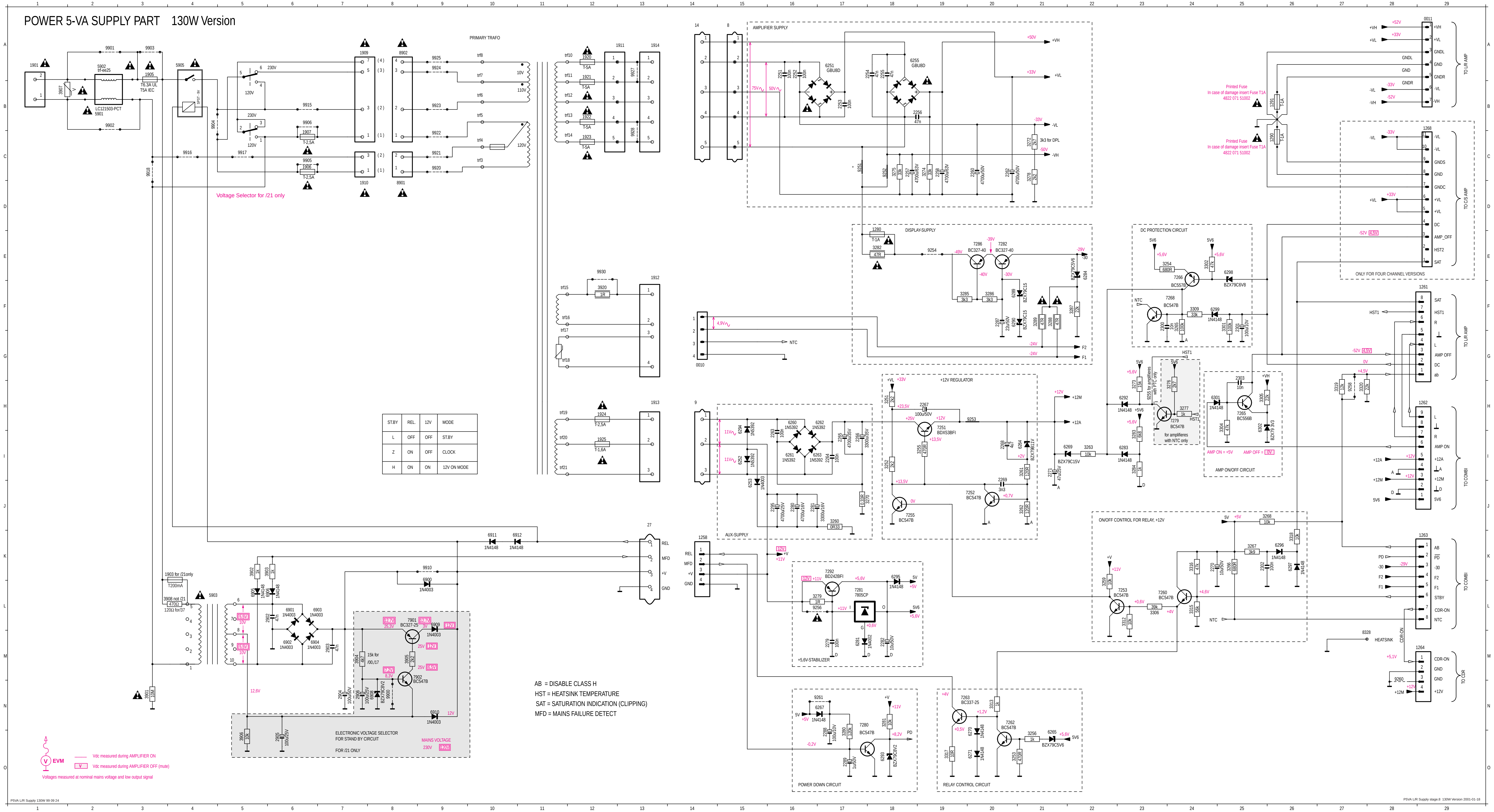
Supply part

printed fuse in case of damage insert fuse T1A 4822 071 51002

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Left / Right Channel Amplifier

# POWER 5-VA SUPPLY PART 130W Version


PRIMARY TRAFO
Voltage Selector for /21 only
AMPLIFIER SUPPLY
DISPLAY-SUPPLY
DC PROTECTION CIRCUIT
ONLY FOR FOUR CHANNEL VERSIONS
+12V REGULATOR
AUX-SUPPLY
HST1
for amplifiers with NTC only
AMP ON/OFF CIRCUIT
AMP ON = +5V
AMP OFF = 0V
ON/OFF CONTROL FOR RELAY, +12V
+5,6V-STABILIZER
POWER DOWN CIRCUIT
RELAY CONTROL CIRCUIT
ELECTRONIC VOLTAGE SELECTOR FOR STAND BY CIRCUIT
FOR /21 ONLY
MAINS VOLTAGE 230V
Printed Fuse In case of damage insert Fuse T1A 4822 071 51002
TO L/R AMP
TO C/S AMP
TO COMBI
TO CDR
HEATSINK
1903 for /21only T200mA
3908 not /21 470Ω 120Ω for/37
15k for /00,/17
3k3 for DPL
REL
MFD
+V
GND
NTC
SAT
HST1
AMP OFF
AMP ON
STBY
CDR-ON

| ST.BY | REL. | 12V | MODE |
|---|---|---|---|
| L | OFF | OFF | ST.BY |
| Z | ON | OFF | CLOCK |
| H | ON | ON | 12V ON MODE |

AB = DISABLE CLASS H
HST = HEATSINK TEMPERATURE
SAT = SATURATION INDICATION (CLIPPING)
MFD = MAINS FAILURE DETECT

EVM

Vdc measured during AMPLIFIER ON

V Vdc measured during AMPLIFIER OFF (mute)

Voltages measured at nominal mains voltage and low output signal

| | |
|---|---|
| 0010 | G14 |
| 0011 | B29 |
| 1258 | K14 |
| 1261 | F29 |
| 1262 | H29 |
| 1263 | M29 |
| 1264 | M29 |
| 1265 | N29 |
| 1268 | B29 |
| 1280 | E18 |
| 1290 | C26 |
| 1291 | B26 |
| 14 | A14 |
| 1901 | A 1 |
| 1903 | J15 |
| 1905 | A 3 |
| 1906 | C 6 |
| 1907 | C 6 |
| 1909 | A 7 |
| 1910 | D 7 |
| 1911 | A13 |
| 1912 | E13 |
| 1913 | H13 |
| 1914 | A13 |
| 1920 | A12 |
| 1921 | A12 |
| 1922 | B12 |
| 1923 | C12 |
| 1924 | H12 |
| 1925 | I12 |
| 2251 | A16 |
| 2252 | A16 |
| 2253 | B17 |
| 2254 | A18 |
| 2255 | A18 |
| 2256 | B19 |
| 2257 | C18 |
| 2258 | C19 |
| 2260 | C20 |
| 2262 | C20 |
| 2263 | I16 |
| 2264 | I17 |
| 2265 | I17 |
| 2266 | I17 |
| 2267 | H19 |
| 2268 | I20 |
| 2269 | J20 |
| 2270 | K24 |
| 2271 | I21 |
| 2279 | M17 |
| 2280 | J16 |
| 2281 | J16 |
| 2282 | M18 |
| 2283 | N24 |
| 2286 | N25 |
| 2287 | F20 |
| 2288 | O17 |
| 2289 | O17 |
| 2290 | O26 |
| 2295 | J16 |
| 2300 | F23 |
| 2301 | F25 |
| 2302 | K25 |
| 2303 | G24 |
| 27 | J13 |
| 2902 | L 6 |
| 2903 | M 7 |
| 2904 | N 7 |
| 2905 | N 6 |
| 2906 | N 7 |
| 3248 | O23 |
| 3249 | O24 |
| 3250 | O24 |
| 3251 | H18 |
| 3252 | I18 |
| 3253 | O20 |
| 3254 | E24 |
| 3255 | I19 |
| 3256 | O21 |
| 3259 | L22 |
| 3260 | J17 |
| 3261 | I21 |
| 3262 | J21 |
| 3263 | I22 |
| 3265 | F24 |
| 3266 | K25 |
| 3267 | K25 |
| 3268 | J26 |
| 3269 | F21 |
| 3270 | J18 |
| 3271 | O26 |
| 3272 | C21 |
| 3273 | H23 |
| 3274 | C19 |
| 3275 | C18 |
| 3278 | C21 |
| 3279 | L17 |
| 3280 | O17 |
| 3281 | N18 |
| 3282 | E18 |
| 3283 | I23 |
| 3284 | I23 |
| 3285 | F19 |
| 3286 | F20 |
| 3287 | F22 |
| 3288 | F21 |
| 3289 | F21 |
| 3290 | O26 |
| 3295 | N26 |
| 3296 | O27 |
| 3298 | N27 |
| 3299 | N28 |
| 3300 | N27 |
| 3301 | F25 |
| 3302 | E24 |
| 3304 | H24 |
| 3305 | H25 |
| 3306 | L23 |
| 3308 | N23 |
| 3309 | F24 |
| 3310 | N23 |
| 3311 | N23 |
| 3312 | L23 |
| 3313 | N20 |
| 3315 | L24 |
| 3316 | K24 |
| 3317 | O19 |
| 3318 | K26 |
| 3319 | H27 |
| 3320 | H27 |
| 3901 | N 3 |
| 3902 | K 5 |
| 3903 | K 6 |
| 3904 | M 7 |
| 3905 | M 8 |
| 3906 | N 5 |
| 3907 | B 1 |
| 3908 | L 4 |
| 3920 | F12 |
| 5901 | B 2 |
| 5902 | A 2 |
| 5903 | L 4 |
| 5905 | A 4 |
| 6251 | A17 |
| 6252 | I15 |
| 6253 | J15 |
| 6255 | A18 |
| 6260 | H16 |
| 6261 | I16 |
| 6262 | H17 |
| 6263 | I17 |
| 6264 | I20 |
| 6265 | N21 |
| 6267 | N17 |
| 6269 | I22 |
| 6270 | O19 |
| 6271 | O19 |
| 6272 | N24 |
| 6281 | M17 |
| 6283 | I23 |
| 6284 | E22 |
| 6289 | F21 |
| 6290 | F20 |
| 6292 | H23 |
| 6293 | O18 |
| 6294 | H15 |
| 6295 | K18 |
| 6296 | K26 |
| 6297 | K26 |
| 6298 | E25 |
| 6299 | F24 |
| 6301 | H24 |
| 6302 | H25 |
| 6900 | K 9 |
| 6901 | L 6 |
| 6902 | M 6 |
| 6903 | L 7 |
| 6904 | M 6 |
| 6905 | L 5 |
| 6906 | L 5 |
| 6908 | N 8 |
| 6909 | L 9 |
| 6910 | N 9 |
| 6911 | K10 |
| 6912 | K11 |
| 7251 | H19 |
| 7252 | J20 |
| 7253 | L23 |
| 7255 | J18 |
| 7260 | L24 |
| 7262 | N20 |
| 7263 | N20 |
| 7265 | H24 |
| 7266 | E24 |
| 7268 | F24 |
| 7280 | N17 |
| 7281 | L17 |
| 7282 | E20 |
| 7283 | M23 |
| 7284 | O23 |
| 7285 | O24 |
| 7286 | E20 |
| 7290 | N26 |
| 7292 | K17 |
| 7901 | L 8 |
| 7902 | M 8 |
| 8 | A15 |
| 8901 | D 8 |
| 8902 | A 8 |
| 9 | H14 |
| 9251 | C17 |
| 9252 | C18 |
| 9253 | H20 |
| 9254 | E19 |
| 9255 | H23 |
| 9256 | L17 |
| 9258 | H27 |
| 9260 | N28 |
| 9261 | N17 |
| 9276 | A16 |
| 9280 | C16 |
| 9900 | N 8 |
| 9901 | A 2 |
| 9902 | B 2 |
| 9903 | A 3 |
| 9904 | B 4 |
| 9905 | C 6 |
| 9906 | B 6 |
| 9910 | K 9 |
| 9911 | F 1 |
| 9912 | G 1 |
| 9913 | G 1 |
| 9914 | G 1 |
| 9915 | B 6 |
| 9916 | C 4 |
| 9917 | C 5 |
| 9918 | C 3 |
| 9920 | C 9 |
| 9921 | C 9 |
| 9922 | C 9 |
| 9923 | B 9 |
| 9924 | A 9 |
| 9925 | A 9 |
| 9927 | A13 |
| 9928 | C13 |
| 9930 | E12 |
| trf10 | A11 |
| trf11 | A11 |
| trf12 | B11 |
| trf13 | B11 |
| trf14 | C11 |
| trf15 | F12 |
| trf16 | F11 |
| trf17 | G12 |
| trf18 | G11 |
| trf19 | H11 |
| trf20 | I11 |
| trf21 | I11 |
| trf3 | C10 |
| trf4 | C10 |
| trf5 | B10 |
| trf6 | B10 |
| trf7 | A10 |
| trf8 | A10 |

## COMPONENT LAYOUT MAINS BOARD

### Interconnection Board

**primary side**

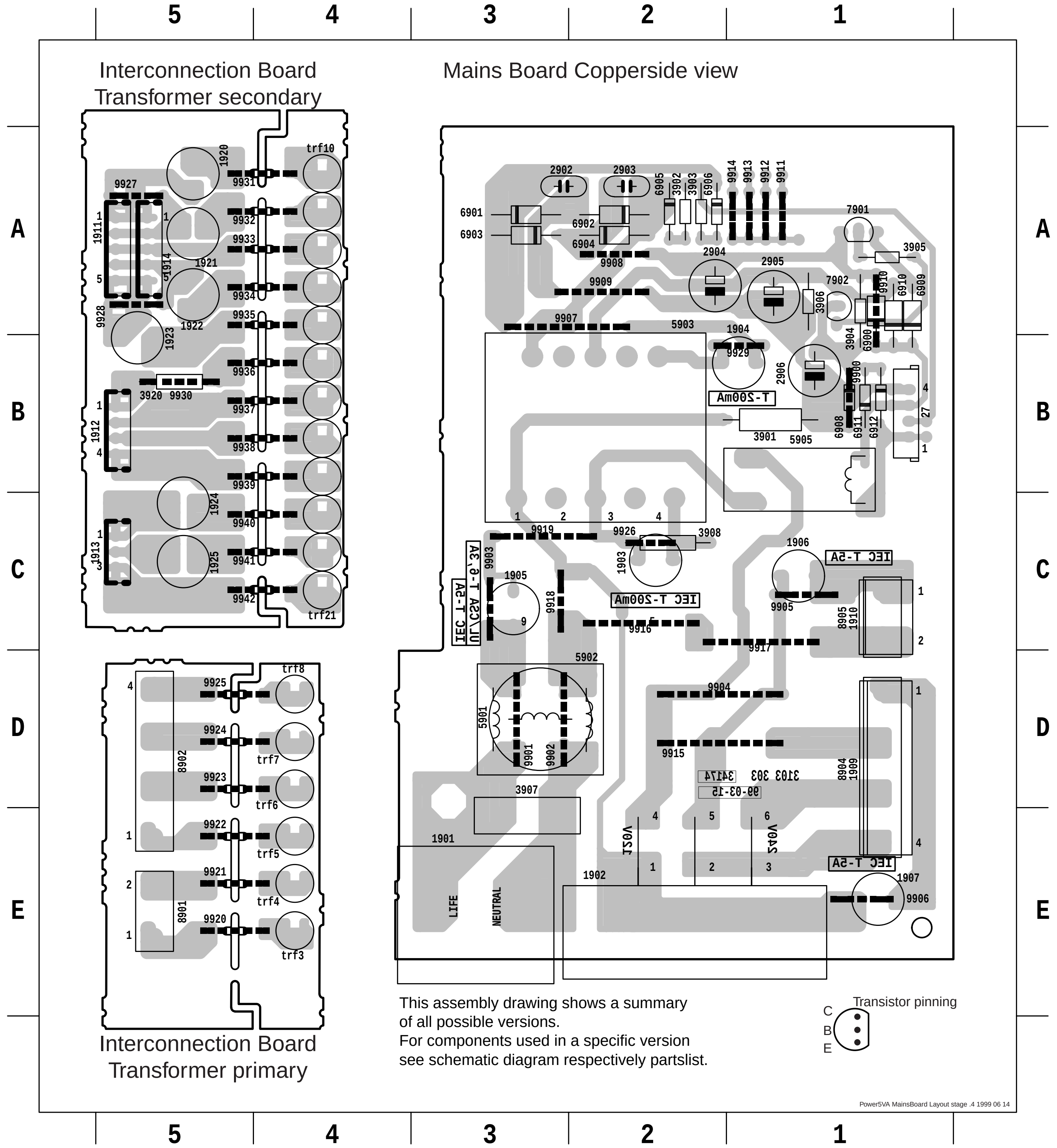
8901 E 5
8902 D 5
9920 E 4
9921 E 4
9922 E 4
9923 D 4
9924 D 4
9925 D 4
trf3 E 4
trf4 E 4
trf5 E 4
trf6 D 4
trf7 D 4
trf8 D 4

**secondary side**

1911 A 5
1912 B 5
1913 C 5
1914 A 5
1920 A 4
1921 A 4
1922 A 4
1923 B 5
1924 C 4
1925 C 4
3920 B 4
9927 A 5
9928 A 5
9930 B 4
9931 A 4
9932 A 4
9933 A 4
9934 A 4
9935 B 4
9936 B 4
9937 B 4
9938 B 4
9939 C 4
9940 C 4
9941 C 4
9942 C 4
trf10 A 3
trf11 A 3
trf12 A 3
trf13 A 3
trf14 B 3
trf15 B 3
trf16 B 3
trf17 B 3
trf18 C 3
trf19 C 3
trf20 C 3
trf21 C 3

### Mains Board

27 B 1
1901 E 3
1902 E 2
1903 C 2
1904 B 2
1905 C 3
1906 C 1
1907 E 1
1909 D 1
1910 C 1
2902 A 3
2903 A 2
2904 A 2
2905 A 1
2906 B 1
3901 B 1
3902 A 2
3903 A 2
3904 B 1
3905 A 1
3906 A 1
3907 E 3
3908 C 2
5901 D 3
5902 D 3
5903 B 2
5905 C 1
6900 B 1
6901 A 3
6902 A 2
6903 A 3
6904 A 2
6905 A 2
6906 A 2
6908 B 1
6909 B 1
6910 B 1
6911 B 1
6912 B 1
7901 A 1
7902 B 1
8904 D 1
8905 C 1
9900 B 1
9901 D 3
9902 D 3
9903 C 3
9904 D 2
9905 C 1
9906 E 1
9907 B 3
9908 A 2
9909 A 2
9910 B 1
9911 A 1
9912 A 1
9913 A 2
9914 A 2
9915 D 2
9916 D 2
9917 D 1
9918 C 3
9919 C 3
9926 C 2
9929 B 2



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

Power5VA MainsBoard Layout stage .4 1999 06 14

## COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

9360 A 2
9361 A 2
9362 A 2
9363 A 2
9364 A 4
9365 A 3
9366 A 3
9367 A 3
9368 A 3
9369 A 3
9370 A 2

ADD
3276 D 6
7279 D 7
9257 B 7
9282 B 8

9314 A 9
9315 B 9
9316 D 13
T256 C 13
T257 C 12
T258 D 13
T265 B 10
T305 A 11
T312 A 7
T314 A 10
T315 B 9
T316 A 10
----
16 A 4
1327 A 4
2357 A 5
3381 A 4

9291 C 9
9292 C 11
9293 A 9
9294 A 10
9298 E 8
9299 B 12
9300 B 12
9302 A 11
9303 B 11
9304 B 12
9305 A 10
9306 B 12
9307 B 10
9308 C 9
9309 B 8
9312 A 9
9313 A 8

9272 A 11
9273 E 12
9274 A 13
9275 C 10
9276 D 9
9277 B 11
9278 E 9
9279 E 10
9280 D 10
9281 D 10
9284 C 12
9285 C 12
9286 C 9
9287 C 10
9288 D 10
9289 B 11
9290 C 10

9254 C 7
9255 D 7
9256 E 12
9258 A 7
9259 B 9
9260 A 10
9261 A 12
9262 A 8
9263 A 11
9264 A 11
9265 E 12
9266 E 12
9267 E 12
9268 E 13
9269 E 12
9270 A 10
9271 E 11

7263 A 13
7265 A 7
7266 B 7
7268 A 7
7280 A 12
7281 E 11
7282 B 10
7283 A 10
7284 A 11
7285 A 11
7286 B 9
7290 D 7
7292 E 12
8328 C 9
9251 E 9
9252 E 8
9253 E 12

6292 D 7
6293 B 12
6294 B 13
6295 A 10
6296 A 9
6297 A 9
6298 B 7
6299 B 7
6301 B 11
6302 B 7
7251 E 13
7252 C 12
7253 A 8
7254 D 12
7255 C 12
7260 A 8
7262 B 13

6263 C 13
6264 C 11
6265 A 13
6267 A 13
6269 B 11
6270 B 12
6271 C 12
6272 A 10
6281 E 12
6283 B 11
6284 B 10
6285 B 8
6286 B 8
6287 B 8
6288 B 8
6289 B 10
6290 B 10

3310 A 9
3311 A 10
3312 B 9
3313 B 12
3315 A 8
3316 A 8
3317 A 13
3318 A 9
3319 A 7
3320 A 7
6251 E 10
6252 B 13
6253 B 13
6255 E 9
6260 D 13
6261 D 13
6262 C 13

3287 B 11
3288 B 10
3289 B 10
3290 E 8
3295 D 7
3296 E 8
3298 D 7
3299 D 7
3300 D 7
3301 B 7
3302 B 7
3303 E 13
3304 B 9
3305 C 9
3306 A 8
3308 A 10
3309 B 7

3268 A 10
3269 B 10
3270 C 12
3271 D 7
3272 E 13
3273 D 7
3274 E 8
3275 D 8
3278 D 13
3279 E 12
3280 A 13
3281 C 12
3282 C 7
3283 D 11
3284 D 11
3285 B 9
3286 B 10

3250 A 11
3251 D 13
3252 D 12
3253 A 13
3254 B 7
3255 E 13
3256 B 13
3257 E 12
3258 E 12
3259 A 12
3260 C 12
3261 C 11
3262 C 12
3263 B 12
3265 B 12
3266 A 8
3267 A 8

2281 C 12
2282 D 11
2283 A 11
2284 C 8
2285 B 9
2286 A 10
2287 B 9
2288 A 13
2289 A 13
2290 D 7
2295 C 12
2300 B 7
2301 B 8
2302 A 9
2303 A 7
3248 A 11
3249 A 11

2257 D 8
2258 C 8
2259 D 10
2260 D 11
2261 C 11
2262 C 11
2263 B 13
2264 D 13
2265 C 13
2266 C 13
2267 D 12
2268 C 12
2269 C 12
2270 B 9
2271 A 12
2279 D 12
2280 C 12

14 D 9
1258 A 13
1261 C 6
1262 A 12
1263 A 7
1264 A 10
1265 C 9
1268 D 13
1280 C 7
1290 E 11
1291 C 9
2251 D 10
2252 E 10
2253 D 10
2254 D 9
2255 E 9
2256 D 9

9348 B 5
9349 B 2
9350 C 2
9351 D 5
9353 C 5
9354 C 2
9355 B 5
9356 D 5
9357 D 5
9358 E 4
9359 E 4
T321 A 1
----
8 D 9
9 B 13
10 B 10
11 D 8

9327 D 3
9328 C 2
9329 C 3
9330 E 5
9331 C 5
9332 B 5
9333 B 5
9335 E 4
9336 E 3
9337 E 3
9338 E 4
9340 C 3
9342 D 5
9343 B 1
9344 D 3
9345 C 4
9347 C 2

7324 C 1
7325 E 1
7326 E 2
7327 D 1
7328 C 1
7329 D 4
7330 C 4
7350 D 2
8327 E 4
9319 C 6
9320 E 6
9321 B 1
9322 B 1
9323 B 3
9324 C 3
9325 C 3
9326 C 3

5322 E 5
5323 C 5
5324 E 5
6325 C 3
6326 C 4
6327 B 4
6328 C 3
6329 B 4
6330 C 3
6333 E 4
6334 E 4
6335 E 4
6336 E 4
6337 D 1
6339 D 1
6360 D 5
7323 C 1

3372 E 3
3373 C 1
3376 C 1
3377 B 5
3378 B 5
3379 B 5
3380 B 5
3383 D 1
3384 D 1
3385 C 5
3386 D 5
3387 D 6
3388 D 6
3389 E 5
3391 D 4
3392 E 4
5321 C 5

3352 D 1
3353 D 1
3355 C 3
3356 C 3
3357 E 1
3358 E 2
3359 C 6
3360 E 6
3363 C 5
3364 D 5
3365 D 5
3366 D 5
3367 D 1
3368 C 1
3369 B 5
3370 E 5
3371 E 3

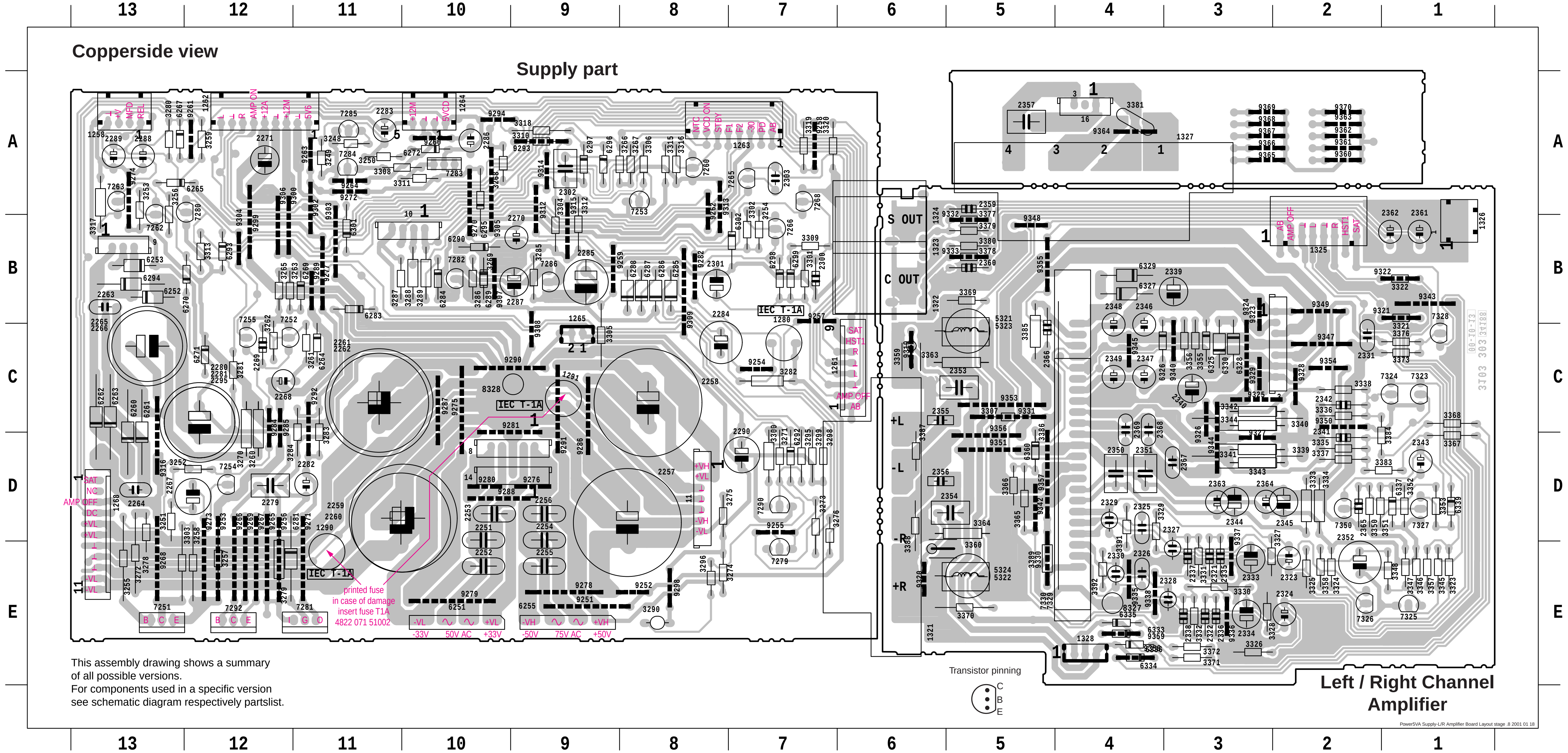
3334 D 2
3335 D 2
3336 C 2
3337 D 2
3338 C 2
3339 D 2
3340 C 2
3341 D 3
3342 C 3
3343 D 3
3344 C 3
3345 E 1
3346 E 1
3347 E 1
3348 E 1
3350 D 2
3351 D 2

2367 D 3
2368 C 4
2369 C 4
3307 C 5
3321 B 1
3322 B 1
3323 E 1
3324 E 2
3325 E 2
3326 E 3
3327 E 3
3328 E 3
3329 D 4
3330 E 3
3331 E 3
3332 E 3
3333 D 2

2348 C 4
2349 C 4
2350 D 4
2351 D 4
2352 E 2
2353 C 5
2354 D 5
2355 C 6
2356 D 6
2359 A 5
2360 B 5
2361 B 1
2362 B 1
2363 D 3
2364 D 3
2365 D 2
2366 C 5

2330 E 4
2331 C 2
2333 E 3
2334 E 3
2335 E 3
2336 E 3
2337 E 3
2338 E 3
2339 B 3
2340 C 3
2341 D 2
2342 C 2
2343 D 1
2344 D 3
2345 D 2
2346 C 4
2347 C 4

3 C 2
1321 D 6
1322 B 6
1323 B 6
1324 B 6
1325 B 2
1326 B 1
1328 E 4
2321 E 3
2322 E 3
2323 E 2
2324 E 2
2325 D 4
2326 E 4
2327 E 3
2328 E 3
2329 D 4

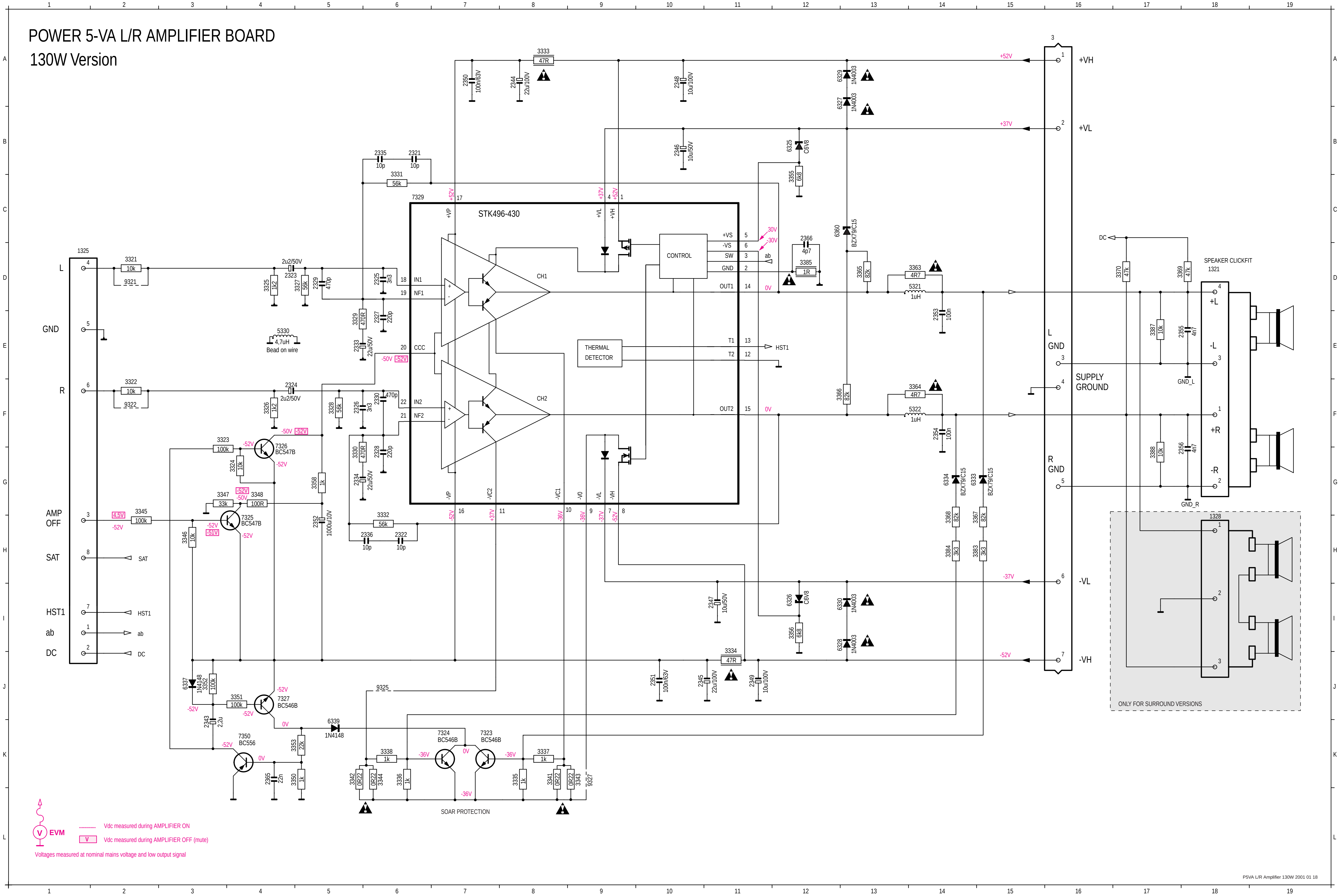


This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

Power5VA Supply-L/R Amplifier Board Layout stage .8 2001 01 18

# POWER 5-VA L/R AMPLIFIER BOARD

## 130W Version


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K L
1325
L
GND
R
AMP OFF
SAT
HST1
ab
DC
3321 10k
9321
3322 10k
9322
2323 2u2/50V
2324 2u2/50V
3325 1k2
3326 1k2
3327 56k
3328 56k
2329 470p
2330 470p
2325 3n3
2326 3n3
5330 4,7uH Bead on wire
3329 470R
3330 470R
2327 220p
2328 220p
2333 22u/50V
2334 22u/50V
2335 10p
2321 10p
3331 56k
2336 10p
2322 10p
3332 56k
7329
STK496-430
IN1
NF1
IN2
NF2
CCC
CH1
CH2
CONTROL
THERMAL DETECTOR
+VS
-VS
SW
GND
OUT1
OUT2
T1
T2
+VP
+VL
+VH
-VP
-VC2
-VC1
-V0
-VL
-VH
HST1
3323 100k
7326 BC547B
3324 10k
3347 33k
3348 100R
7325 BC547B
3345 100k
3346 10k
3358 1k
2352 1000u/10V
6337 1N4148
3352 100k
3351 100k
7327 BC546B
2343 2.2u
7350 BC556
3353 22k
2365 22n
3350 1k
6339 1N4148
9325
3338 1k
7324 BC546B
7323 BC546B
3337 1k
3342 0R22
3344 0R22
3336 1k
3335 1k
3341 0R22
3343 0R22
9327
SOAR PROTECTION
3333 47R
2350 100n/63V
2344 22u/100V
2348 10u/100V
2346 10u/50V
6329 1N4003
6327 1N4003
6325 C6V8
3355 6k8
6360 BZX79/C15
2366 4p7
3385 1R
3365 82k
3366 82k
3363 4R7
3364 4R7
5321 1uH
5322 1uH
2353 100n
2354 100n
6334 BZX79/C15
6333 BZX79/C15
3368 82k
3367 82k
3384 3k3
3383 3k3
2347 10u/50V
6326 C6V8
3356 6k8
6330 1N4003
6328 1N4003
3334 47R
2351 100n/63V
2345 22u/100V
2349 10u/100V
+52V
+37V
-37V
-52V
-36V
0V
30V
-30V
-50V
4,5V
-51V
+VH
+VL
-VL
-VH
L GND
R GND
SUPPLY GROUND
DC
SPEAKER CLICKFIT
1321
3370 47k
3369 47k
3387 10k
3388 10k
2355 4n7
2356 4n7
+L
-L
+R
-R
GND_L
GND_R
1328
ONLY FOR SURROUND VERSIONS

EVM

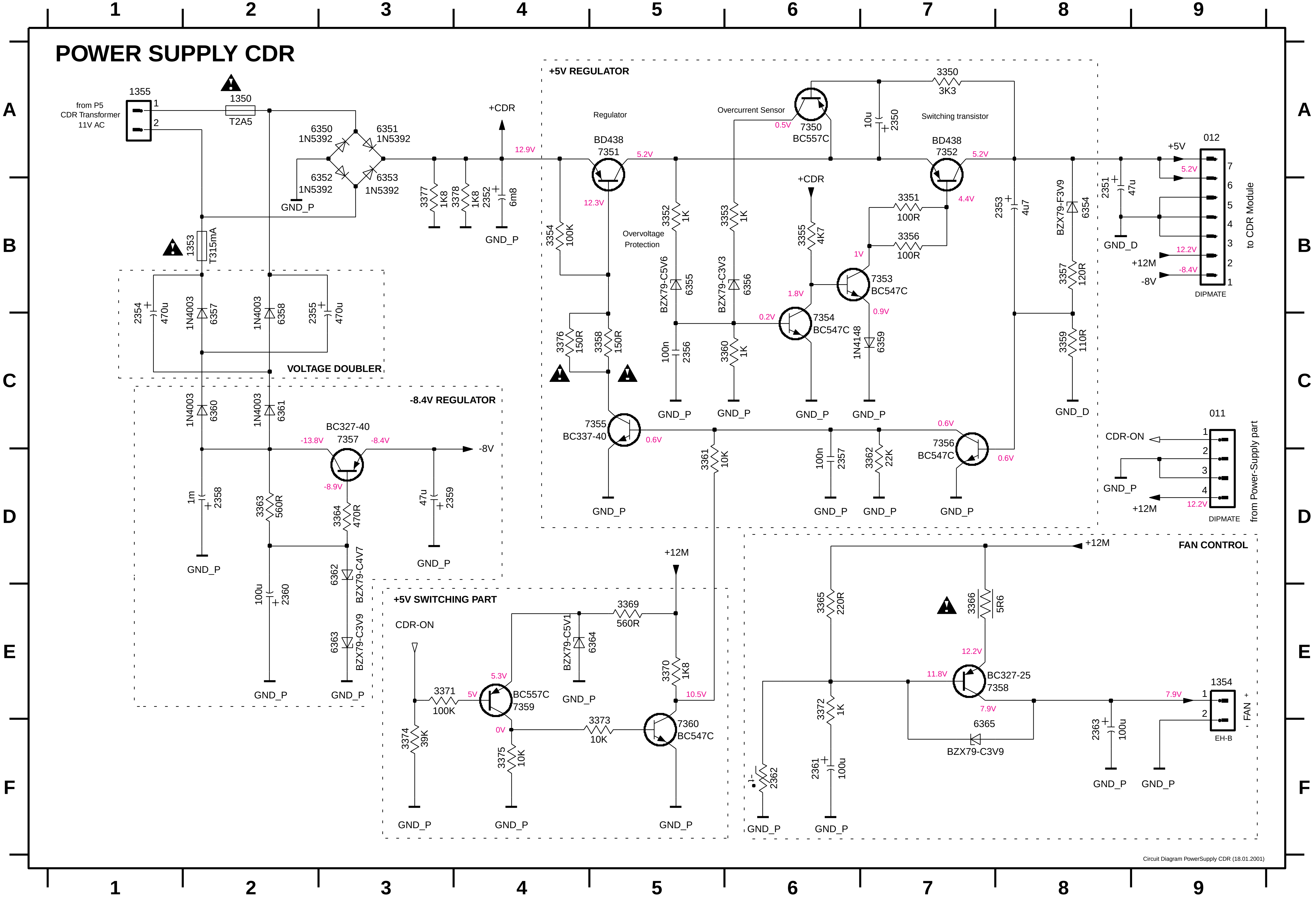
Vdc measured during AMPLIFIER ON

Vdc measured during AMPLIFIER OFF (mute)

Voltages measured at nominal mains voltage and low output signal

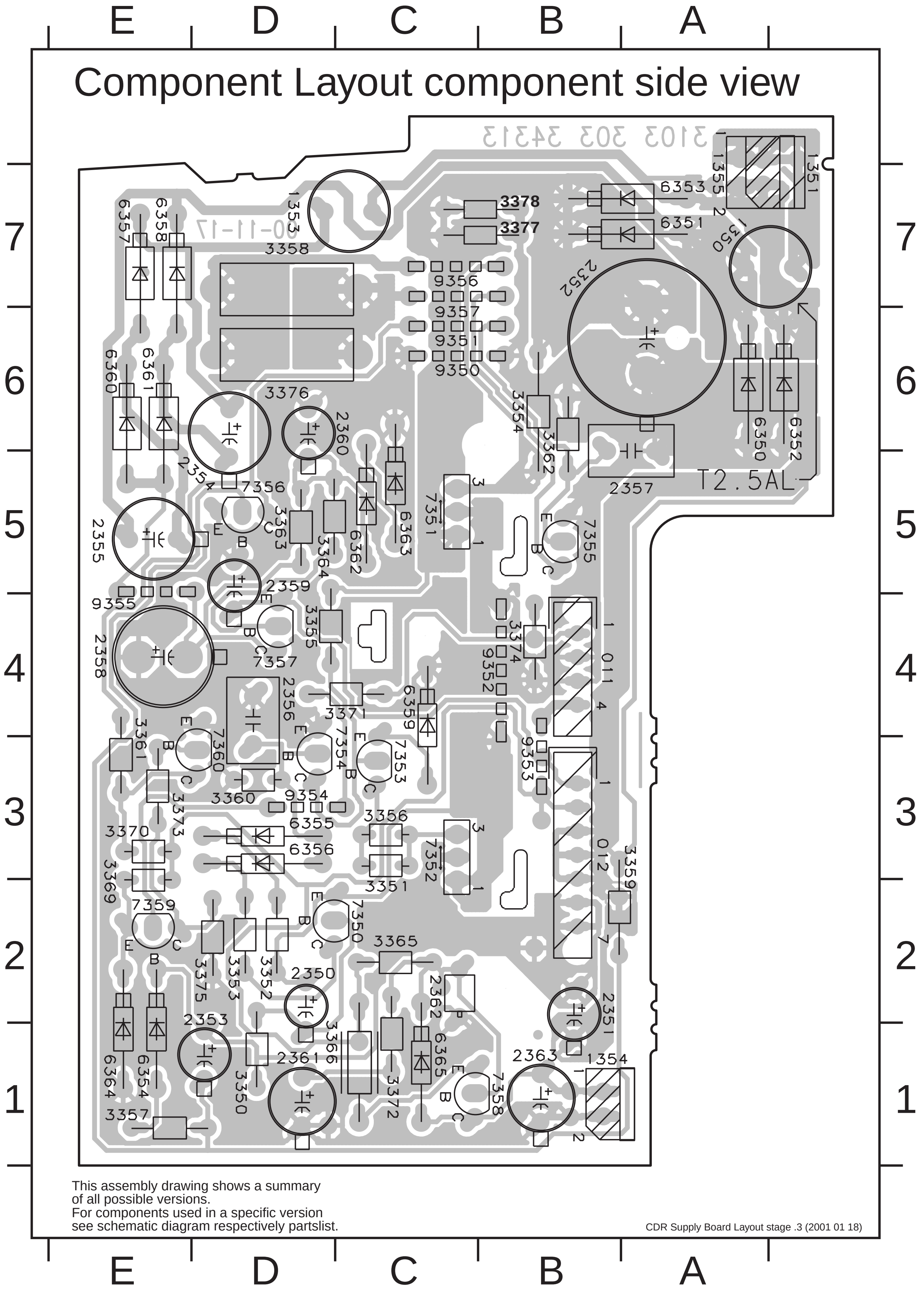
| | |
|---|---|
| 1321 | D18 |
| 1325 | D 1 |
| 1328 | G18 |
| 2321 | B 6 |
| 2322 | H 6 |
| 2323 | D 4 |
| 2324 | F 4 |
| 2325 | D 5 |
| 2326 | F 5 |
| 2327 | E 6 |
| 2328 | G 6 |
| 2329 | D 6 |
| 2330 | F 6 |
| 2331 | E 3 |
| 2333 | E 5 |
| 2334 | G 5 |
| 2335 | B 6 |
| 2336 | H 6 |
| 2337 | B 6 |
| 2338 | H 6 |
| 2341 | K 7 |
| 2342 | K 6 |
| 2343 | K 3 |
| 2344 | A 8 |
| 2345 | J10 |
| 2346 | B10 |
| 2347 | I11 |
| 2348 | A10 |
| 2349 | J11 |
| 2350 | A 7 |
| 2351 | J10 |
| 2352 | H 5 |
| 2353 | E14 |
| 2354 | F14 |
| 2355 | E18 |
| 2356 | G18 |
| 2363 | A 7 |
| 2364 | J10 |
| 2365 | K 4 |
| 2366 | C12 |
| 2367 | B8 |
| 2368 | I8 |
| 2369 | I9 |
| 3 | A16 |
| 3321 | D 2 |
| 3322 | F 2 |
| 3323 | F 3 |
| 3324 | G 4 |
| 3325 | D 4 |
| 3326 | F 4 |
| 3327 | D 5 |
| 3328 | F 5 |
| 3329 | E 5 |
| 3330 | G 5 |
| 3331 | C 6 |
| 3332 | H 6 |
| 3333 | A 8 |
| 3334 | J11 |
| 3335 | K 8 |
| 3336 | K 6 |
| 3337 | K 8 |
| 3338 | K 6 |
| 3341 | K 8 |
| 3342 | K 5 |
| 3343 | K 9 |
| 3344 | K 5 |
| 3345 | G 2 |
| 3346 | H 3 |
| 3347 | G 3 |
| 3348 | G 4 |
| 3350 | K 5 |
| 3351 | J 4 |
| 3352 | J 3 |
| 3353 | K 5 |
| 3355 | C12 |
| 3356 | I12 |
| 3358 | G 5 |
| 3363 | D14 |
| 3364 | E14 |
| 3365 | D13 |
| 3366 | F13 |
| 3367 | H15 |
| 3368 | H14 |
| 3369 | D18 |
| 3370 | D17 |
| 3383 | H15 |
| 3384 | H14 |
| 3385 | D12 |
| 3386 | C13 |
| 3387 | E17 |
| 3388 | G17 |
| 3389 | F13 |
| 5321 | D14 |
| 5322 | F14 |
| 5323 | D14 |
| 5324 | F14 |
| 6325 | B12 |
| 6326 | I12 |
| 6327 | A13 |
| 6328 | I13 |
| 6329 | A13 |
| 6330 | I13 |
| 6333 | G14 |
| 6334 | G14 |
| 6337 | J 3 |
| 6339 | K 5 |
| 6360 | C12 |
| 7323 | K 7 |
| 7324 | K 7 |
| 7325 | H 4 |
| 7326 | G 4 |
| 7327 | J 4 |
| 7329 | C 6 |
| 7350 | K 4 |
| 9321 | D 2 |
| 9322 | F 2 |
| 9323 | A12 |
| 9324 | J 6 |
| 9325 | J 6 |
| 9326 | J 6 |
| 9327 | K 9 |
| 9328 | K10 |
| 9329 | I12 |
| 9330 | F12 |
| 9331 | D12 |
| 9358 | G14 |
| 9359 | G15 |

# POWER SUPPLY CDR


1 2 3 4 5 6 7 8 9
A B C D E F
1355
from P5
CDR Transformer
11V AC
1350
T2A5
1353
T315mA
6350 1N5392
6351 1N5392
6352 1N5392
6353 1N5392
GND_P
+CDR
12.9V
3377 1K8
3378 1K8
2352 6m8
VOLTAGE DOUBLER
2354 470u
1N4003 6357
1N4003 6358
2355 470u
-8.4V REGULATOR
1N4003 6360
1N4003 6361
BC327-40
7357
-13.8V
-8.4V
-8.9V
-8V
2358 1m
3363 560R
3364 470R
2359 47u
2360 100u
6362 BZX79-C4V7
6363 BZX79-C3V9
+5V REGULATOR
Regulator
BD438
7351
5.2V
12.3V
3354 100K
3376 150R
3358 150R
Overvoltage
Protection
3352 1K
BZX79-C5V6 6355
2356 100n
Overcurrent Sensor
7350
BC557C
0.5V
3353 1K
BZX79-C3V3 6356
3360 1K
0.2V
7354
BC547C
10u 2350
3350 3K3
Switching transistor
BD438
7352
4.4V
3351 100R
3356 100R
1V
7353
BC547C
1.8V
3355 4K7
0.9V
1N4148 6359
7355
BC337-40
0.6V
3361 10K
2357 100n
3362 22K
7356
BC547C
2353 4u7
BZX79-F3V9 6354
3357 120R
3359 110R
GND_D
2351 47u
+5V
012
to CDR Module
+12M
-8V
12.2V
-8.4V
DIPMATE
011
CDR-ON
from Power-Supply part
+5V SWITCHING PART
3371 100K
3374 39K
BC557C
7359
5.3V
0V
3375 10K
BZX79-C5V1 6364
3369 560R
+12M
3370 1K8
10.5V
3373 10K
7360
BC547C
FAN CONTROL
3365 220R
3366 5R6
12.2V
11.8V
BC327-25
7358
7.9V
6365
BZX79-C3V9
3372 1K
2361 100u
2362
2363 100u
1354
FAN
EH-B

Circuit Diagram PowerSupply CDR (18.01.2001)

| | |
|---|---|
| 011 | C9 |
| 012 | A9 |
| 1350 | A2 |
| 1351 | A1 |
| 1353 | B2 |
| 1354 | E9 |
| 1355 | A1 |
| 2350 | A7 |
| 2351 | B8 |
| 2352 | B4 |
| 2353 | B8 |
| 2354 | C1 |
| 2355 | C2 |
| 2356 | C5 |
| 2357 | D6 |
| 2358 | D2 |
| 2359 | D3 |
| 2360 | E2 |
| 2361 | F6 |
| 2362 | F6 |
| 2363 | F8 |
| 3350 | A7 |
| 3351 | B7 |
| 3352 | B5 |
| 3353 | B6 |
| 3354 | B4 |
| 3355 | B6 |
| 3356 | B7 |
| 3357 | B8 |
| 3358 | C5 |
| 3359 | C8 |
| 3360 | C6 |
| 3361 | D5 |
| 3362 | D7 |
| 3363 | D2 |
| 3364 | D3 |
| 3365 | E6 |
| 3366 | E7 |
| 3369 | E5 |
| 3370 | E5 |
| 3371 | E3 |
| 3372 | E6 |
| 3373 | F5 |
| 3374 | F3 |
| 3375 | F4 |
| 3376 | C4 |
| 6350 | A3 |
| 6351 | A3 |
| 6352 | B3 |
| 6353 | B3 |
| 6354 | B8 |
| 6355 | B5 |
| 6356 | B6 |
| 6357 | C2 |
| 6358 | C2 |
| 6359 | C7 |
| 6360 | C2 |
| 6361 | C2 |
| 6362 | D3 |
| 6363 | E3 |
| 6364 | E4 |
| 6365 | F7 |
| 7350 | A6 |
| 7351 | A5 |
| 7352 | A7 |
| 7353 | B7 |
| 7354 | C6 |
| 7355 | C5 |
| 7356 | C7 |
| 7357 | C3 |
| 7358 | E7 |
| 7359 | E4 |
| 7360 | F5 |


E
D
C
B
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3103 303 34313
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3351
012
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7359
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7350
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2350
2362
2353
2361
3366
6365
7358
6364
6354
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3372
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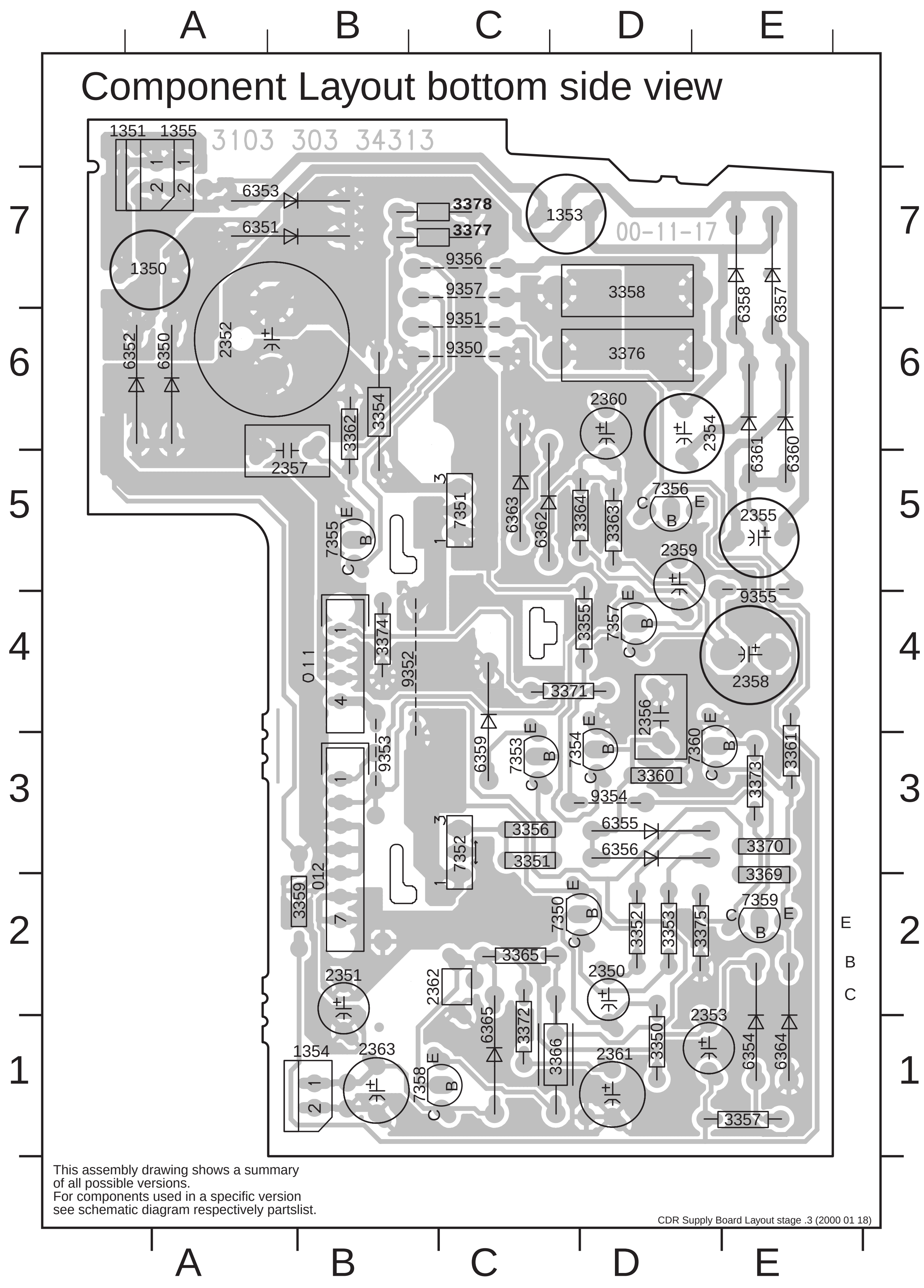
2351
1354
3357

## Component Layout component side view

This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

CDR Supply Board Layout stage .3 (2001 01 18)

| | |
|---|---|
| 011 | B4 |
| 012 | B3 |
| 1350 | A7 |
| 1351 | A7 |
| 1353 | D7 |
| 1354 | B1 |
| 1355 | A7 |
| 2350 | D2 |
| 2351 | B2 |
| 2352 | B7 |
| 2353 | E2 |
| 2354 | E5 |
| 2355 | E5 |
| 2356 | D4 |
| 2357 | B5 |
| 2358 | E4 |
| 2359 | D5 |
| 2360 | D6 |
| 2361 | D1 |
| 2362 | C2 |
| 2363 | B1 |
| 3350 | D1 |
| 3351 | C2 |
| 3352 | D2 |
| 3353 | D2 |
| 3354 | B6 |
| 3355 | D4 |
| 3356 | C3 |
| 3357 | E1 |
| 3358 | D7 |
| 3359 | B3 |
| 3360 | D3 |
| 3361 | E3 |
| 3362 | B5 |
| 3363 | D5 |
| 3364 | D5 |
| 3365 | C2 |
| 3366 | D1 |
| 3369 | E2 |
| 3370 | E3 |
| 3371 | D4 |
| 3372 | C1 |
| 3373 | E3 |
| 3374 | B4 |
| 3375 | E2 |
| 3376 | D6 |
| 3377 | C1 |
| 3378 | C1 |
| 6350 | A6 |
| 6351 | A7 |
| 6352 | A6 |
| 6353 | A7 |
| 6354 | E1 |
| 6355 | D3 |
| 6356 | D3 |
| 6357 | E7 |
| 6358 | E7 |
| 6359 | C4 |
| 6360 | E6 |
| 6361 | E6 |
| 6362 | D5 |
| 6363 | C5 |
| 6364 | E1 |
| 6365 | C1 |
| 7350 | D2 |
| 7351 | C5 |
| 7352 | C3 |
| 7353 | C3 |
| 7354 | D3 |
| 7355 | B5 |
| 7356 | D5 |
| 7357 | D4 |
| 7358 | C1 |
| 7359 | E2 |
| 7360 | E3 |
| 9350 | C6 |
| 9351 | C6 |
| 9352 | C4 |
| 9353 | B3 |
| 9354 | D3 |
| 9355 | E4 |
| 9356 | C7 |
| 9357 | C6 |


A
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C
D
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3103 303 34313
00-11-17
1351
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6353
6351
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3358
3376
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6361
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7351
6363
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7357
3374
011
9352
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3371
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3369
012
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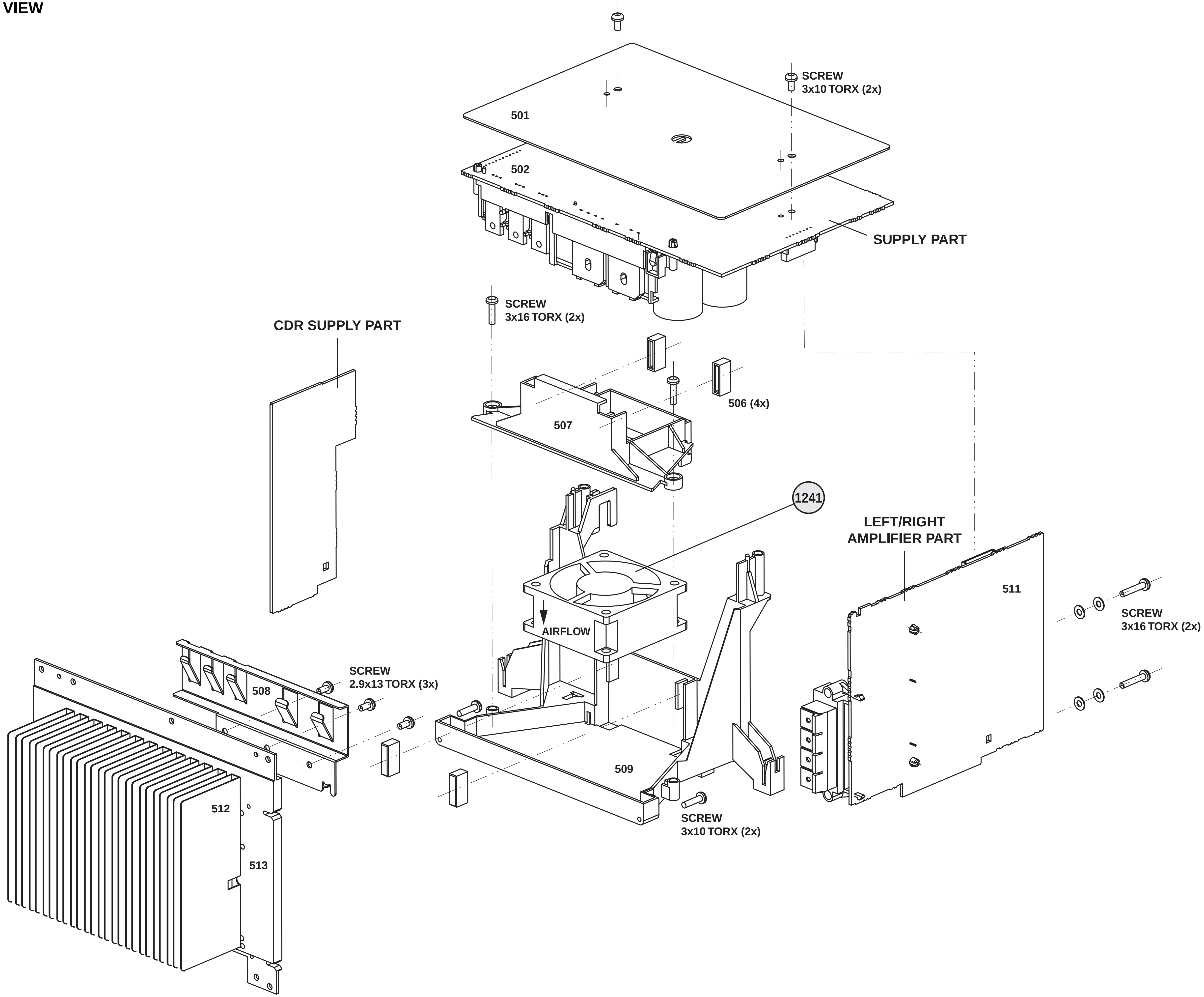
2362
2351
2353
1354
2363
7358
6365
3372
3366
2361
3350
6354
6364
3357
E
B
C

## Component Layout bottom side view

This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

CDR Supply Board Layout stage .3 (2000 01 18)

## EXPLODED VIEW


SCREW
3x10 TORX (2x)
501
502
SUPPLY PART
SCREW
3x16 TORX (2x)
CDR SUPPLY PART
506 (4x)
507
1241
LEFT/RIGHT
AMPLIFIER PART
511
SCREW
3x16 TORX (2x)
AIRFLOW
SCREW
2.9x13 TORX (3x)
508
509
512
513
SCREW
3x10 TORX (2x)

## *ELECTRICAL PARTSLIST POWER BOARD*

### MECHANICAL PARTS

| | | |
|---|---|---|
| | 4822 466 93148 | SPACER |
| 401 | 4822 256 10555 | RUCKSACK P5 (L/R-MTX) |
| 401 | 4822 256 10557 | RUCKSACK P5 (L/R-C/S) |
| 401 | 4822 256 10558 | RUCKSACK P5 (L/R) |
| 1241 | 4822 361 11161 | KD1206PTS3, FAN |

### MISCELLANEOUS

| | | |
|---|---|---|
| 1321 | 4822 267 31176 | SPEAKER TERMINAL |
| 1901 | 4822 265 31015⚠ | MAINS SOCKET, IEC |
| 1901 | 4822 265 31016⚠ | MAINS SOCKET, UL |
| 1902 | 4822 272 10269⚠ | VOLTAGE SELECTOR |
| 1903 | 4822 071 52001⚠ | FUSE 200mA/T |
| 1905 | 4822 071 55002⚠ | FUSE T5A |
| 1905 | 4822 252 51123⚠ | FUSE T6,3A |
| 1906 | 4822 071 55002⚠ | FUSE T5A |
| 1907 | 4822 071 55002⚠ | FUSE T5A |
| 1920 | 4822 071 55002⚠ | FUSE T5A |
| 1921 | 4822 071 55002⚠ | FUSE T5A |
| 1922 | 4822 071 55002⚠ | FUSE T5A |
| 1923 | 4822 071 55002⚠ | FUSE T5A |
| 1924 | 4822 071 52502⚠ | FUSE T 2,5A |
| 1925 | 4822 071 51602⚠ | FUSE 1,6A |
| 5903 | 4822 146 11142⚠ | STBY TRANSFORMER, USA |
| 5903 | 4822 146 11143⚠ | STBY TRANSFORMER, EUROPE |
| 5903 | 4822 146 11144⚠ | STBY TRANSFORMER, OVERSEA |
| 5905 | 4822 280 10382⚠ | STAND BY RELAIS, SDT-SS-109DM |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2251 | 5322 121 42578 | 100nF | 10% | 100V |
| 2252 | 5322 121 42578 | 100nF | 10% | 100V |
| 2253 | 5322 121 42578 | 100nF | 10% | 100V |
| 2254 | 4822 121 43526 | 47nF | 5% | 100V |
| 2255 | 4822 121 43526 | 47nF | 5% | 100V |
| 2256 | 4822 121 43526 | 47nF | 5% | 100V |
| 2257 | 4822 124 12423 | 4700µF | 20% | 63V |
| 2258 | 4822 124 12423 | 4700µF | 20% | 63V |
| 2260 | 4822 124 80415 | 4700µF | 20% | 50V |
| 2262 | 4822 124 80415 | 4700µF | 20% | 50V |
| 2263 | 5322 121 42386 | 100nF | 5% | 63V |
| 2264 | 5322 121 42386 | 100nF | 5% | 63V |
| 2265 | 4822 124 80563 | 4700µF | 20% | 35V |
| 2267 | 4822 124 40255 | 100µF | 20% | 50V |
| 2268 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2269 | 4822 121 51387 | 10nF | 20% | 16V |
| 2269 | 4822 122 10577 | 3,3nF | 10% | 16V |
| 2269 | 4822 122 33197 | 1nF | 10% | 50V |
| 2270 | 4822 124 40248 | 10µF | 20% | 63V |
| 2270 | 4822 124 41579 | 10µF | 20% | 50V |
| 2271 | 4822 124 40433 | 47µF | 20% | 25V |
| 2279 | 5322 121 42386 | 100nF | 5% | 63V |
| 2280 | 4822 124 12328 | 6800µF | 20% | 16V |
| 2282 | 4822 124 40248 | 10µF | 20% | 63V |
| 2282 | 4822 124 41579 | 10µF | 20% | 50V |
| 2289 | 4822 124 21913 | 1µF | 20% | 63V |
| 2289 | 4822 124 40242 | 1µF | 20% | 63V |
| 2290 | 4822 124 40207 | 100µF | 20% | 25V |
| 2300 | 4822 121 51387 | 10nF | 20% | 16V |
| 2301 | 4822 124 41584 | 100µF | 20% | 10V |
| 2303 | 4822 121 41857 | 10nF | 5% | 250V |
| 2321 | 4822 122 33847 | 10pF | 5% | 50V |
| 2322 | 4822 122 33847 | 10pF | 5% | 50V |
| 2323 | 4822 124 22652 | 2,2µF | 20% | 50V |
| 2323 | 4822 124 41576 | 2,2µF | 20% | 50V |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2324 | 4822 124 22652 | 2,2µF | 20% | 50V |
| 2324 | 4822 124 41576 | 2,2µF | 20% | 50V |
| 2325 | 4822 122 33532 | 3,3nF | 5% | 50V |
| 2326 | 4822 122 33532 | 3,3nF | 5% | 50V |
| 2327 | 5322 122 32334 | 220pF | 10% | 100V |
| 2328 | 5322 122 32334 | 220pF | 10% | 100V |
| 2329 | 5322 122 32311 | 470pF | 10% | 100V |
| 2330 | 5322 122 32311 | 470pF | 10% | 100V |
| 2331 | 5322 122 32261 | 4,7nF | 10% | 100V |
| 2333 | 4822 124 81151 | 22µF | 20% | 50V |
| 2334 | 4822 124 81151 | 22µF | 20% | 50V |
| 2335 | 4822 122 33847 | 10pF | 5% | 50V |
| 2336 | 4822 122 33847 | 10pF | 5% | 50V |
| 2341 | 4822 126 11585 | 22nF | 20% | 50V |
| 2342 | 4822 126 11585 | 22nF | 20% | 50V |
| 2343 | 4822 124 22652 | 2,2µF | 20% | 50V |
| 2343 | 4822 124 41579 | 10µF | 20% | 50V |
| 2344 | 4822 124 40764 | 22µF | 20% | 100V |
| 2345 | 4822 124 40764 | 22µF | 20% | 100V |
| 2346 | 4822 124 40248 | 10µF | 20% | 63V |
| 2346 | 4822 124 41579 | 10µF | 20% | 50V |
| 2347 | 4822 124 40248 | 10µF | 20% | 63V |
| 2347 | 4822 124 41579 | 10µF | 20% | 50V |
| 2348 | 4822 124 81043 | 10µF | 20% | 100V |
| 2349 | 4822 124 81043 | 10µF | 20% | 100V |
| 2350 | 5322 121 42386 | 100nF | 5% | 63V |
| 2351 | 5322 121 42386 | 100nF | 5% | 63V |
| 2352 | 4822 124 40181 | 220µF | 20% | 10V |
| 2353 | 5322 121 42386 | 100nF | 5% | 63V |
| 2354 | 5322 121 42386 | 100nF | 5% | 63V |
| 2355 | 5322 122 32261 | 4,7nF | 10% | 100V |
| 2356 | 5322 122 32261 | 4,7nF | 10% | 100V |
| 2365 | 4822 126 12785 | 47nF | 20% | 50V |
| 2902 | 4822 121 43526 | 47nF | 5% | 100V |
| 2903 | 4822 121 43526 | 47nF | 5% | 100V |
| 2904 | 4822 124 40255 | 100µF | 20% | 50V |
| 2905 | 4822 124 40207 | 100µF | 20% | 25V |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3251 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3252 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3254 | 4822 116 52228 | 680Ω | 5% | 0,5W |
| 3255 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3259 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3259 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3260 | 4822 117 11342 | 0,33Ω | 5% | 2W |
| 3261 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3261 | 4822 116 83876 | 270Ω | 5% | 0.16W |
| 3262 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3263 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3264 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3265 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3266 | 4822 116 52228 | 680Ω | 5% | 0,5W |
| 3267 | 4822 116 52276 | 3,9kΩ | 5% | 0,5W |
| 3268 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3269 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3270 | 4822 117 11342 | 0,33Ω | 5% | 2W |
| 3271 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3272 | 4822 116 52263 | 2,7kΩ | 5% | 0,5W |
| 3272 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3273 | 4822 116 52244 | 15kΩ | 5% | 0,5W |
| 3274 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3275 | 4822 050 23303 | 33kΩ | 1% | 0,6W |

## *ELECTRICAL PARTSLIST POWER BOARD*

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3278 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3280 | 4822 116 52239 | 120kΩ | 5% | 0,5W |
| 3281 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3282 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3285 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3286 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3287 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3288 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3289 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3290 | 4822 117 12063 | 10kΩ NTC | | |
| 3295 | 4822 116 83876 | 270Ω | 5% | 0.16W |
| 3296 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3298 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3299 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3300 | 4822 052 10568 | 5,6Ω | 5% | 0,33W |
| 3302 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3304 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3305 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3306 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3306 | 4822 116 83882 | 39kΩ | 5% | 0,5W |
| 3307 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3309 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3312 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3313 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3315 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3315 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3316 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3317 | 4822 052 10109 | 10Ω | 5% | NFR |
| 3321 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3322 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3323 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3324 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3325 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3325 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3326 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3326 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3327 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3328 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3329 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3329 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3330 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3330 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3331 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3332 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3333 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3334 | 4822 052 10479 | 47Ω | 5% | 0,3W |
| 3335 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3335 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3336 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3336 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3337 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3338 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3339 | 4822 113 80633 | 0,1Ω | 5% | 3W |
| 3340 | 4822 113 80633 | 0,1Ω | 5% | 3W |
| 3341 | 4822 117 11744 | 0,22Ω | 5% | 1W |
| 3342 | 4822 117 11744 | 0,22Ω | 5% | 1W |
| 3343 | 4822 117 11744 | 0,22Ω | 5% | 1W |
| 3344 | 4822 117 11744 | 0,22Ω | 5% | 1W |
| 3345 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3346 | 4822 116 83864 | 10kΩ | 5% | 0,5W |

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3347 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3348 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3350 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3351 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3352 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3353 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3355 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3356 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3357 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3358 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3363 | 4822 053 10478 | 4,7Ω | 5% | 1W |
| 3364 | 4822 053 10478 | 4,7Ω | 5% | 1W |
| 3365 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3365 | 4822 116 52304 | 82kΩ | 5% | 0,5W |
| 3366 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3366 | 4822 116 52304 | 82kΩ | 5% | 0,5W |
| 3367 | 4822 116 52304 | 82kΩ | 5% | 0,5W |
| 3368 | 4822 116 52304 | 82kΩ | 5% | 0,5W |
| 3369 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3370 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3383 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3383 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3383 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3384 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3384 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3385 | 4822 052 10108 | 1Ω | 5% | 0,33W |
| 3387 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3388 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3391 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3392 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3901 | 4822 053 21106 | 10MΩ | 5% | 0,5W |
| 3902 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3903 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3904 | 4822 116 52244 | 15kΩ | 5% | 0,5W |
| 3904 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3905 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3906 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3908 | 4822 053 10471 | 470Ω | 5% | 1W |
| 3920 | 4822 052 10108 | 1Ω | 5% | 0,33W |

COILS

| | | |
|---|---|---|
| 5321 | 4822 157 70599 | 1µH |
| 5322 | 4822 157 70599 | 1µH |
| 5901 | 4822 157 11832 | 400µH |
| 5902 | 4822 157 11628 | MAINS CHOKE |

DIODES

| | | |
|---|---|---|
| 6251 | 4822 130 11139 | BRIDGE RECTIFIER GBU8D |
| 6251 | 4822 130 83302 | BRIDGE RECTIFIER GBU4D |
| 6252 | 4822 130 31878 | 1N4003G |
| 6252 | 5322 130 80686 | 1N5392 |
| 6253 | 4822 130 31878 | 1N4003G |
| 6255 | 4822 130 11139 | GBU8D |
| 6260 | 4822 130 31878 | 1N4003G |
| 6260 | 5322 130 80686 | 1N5392 |
| 6261 | 4822 130 31878 | 1N4003G |
| 6261 | 5322 130 80686 | 1N5392 |
| 6262 | 4822 130 31878 | 1N4003G |
| 6262 | 5322 130 80686 | 1N5392 |
| 6263 | 4822 130 31878 | 1N4003G |
| 6263 | 5322 130 80686 | 1N5392 |
| 6264 | 4822 130 61219 | BZX79-C10 |

## ***ELECTRICAL PARTSLIST POWER BOARD***

### DIODES

| | | |
|---|---|---|
| 6264 | 9331 668 80133 | DIO REG BZX79-B11 |
| 6269 | 4822 130 34281 | BZX79-C15 |
| 6270 | 4822 130 30621 | 1N4148 |
| 6271 | 4822 130 30621 | 1N4148 |
| 6281 | 4822 130 31878 | 1N4003G |
| 6284 | 4822 130 34173 | BZX79-B5V6 |
| 6289 | 4822 130 34281 | BZX79-C15 |
| 6290 | 4822 130 34281 | BZX79-C15 |
| 6292 | 4822 130 30621 | 1N4148 |
| 6293 | 4822 130 34382 | BZX79-B8V2 |
| 6294 | 4822 130 31878 | 1N4003G |
| 6294 | 5322 130 80686 | 1N5392 |
| 6295 | 4822 130 30621 | 1N4148 |
| 6298 | 4822 130 34278 | BZX79-C6V8 |
| 6299 | 4822 130 30621 | 1N4148 |
| 6301 | 4822 130 30621 | 1N4148 |
| 6302 | 5322 130 31504 | BZX79-B3V3 |
| 6325 | 4822 130 34278 | BZX79-C6V8 |
| 6326 | 4822 130 34278 | BZX79-C6V8 |
| 6333 | 4822 130 34281 | BZX79-C15 |
| 6334 | 4822 130 34281 | BZX79-C15 |
| 6337 | 4822 130 30621 | 1N4148 |
| 6339 | 4822 130 30621 | 1N4148 |
| 6360 | 4822 130 34281 | BZX79-C15 |
| 6900 | 4822 130 31878 | 1N4003G |
| 6901 | 4822 130 31878 | 1N4003G |
| 6902 | 4822 130 31878 | 1N4003G |
| 6903 | 4822 130 31878 | 1N4003G |
| 6904 | 4822 130 31878 | 1N4003G |
| 6905 | 4822 130 30621 | 1N4148 |
| 6906 | 4822 130 30621 | 1N4148 |
| 6908 | 4822 130 34382 | BZX79-B8V2 |
| 6909 | 4822 130 32245 | BYV10-40 |
| 6910 | 4822 130 31878 | 1N4003G |
| 6911 | 4822 130 30621 | 1N4148 |
| 6912 | 4822 130 30621 | 1N4148 |

### TRANSISTORS

| | | |
|---|---|---|
| 7251 | 4822 130 10812 | BDX53BFI |
| 7251 | 9322 139 23687 | BDX53BFP |
| 7252 | 4822 130 40959 | BC547B |
| 7253 | 4822 130 40959 | BC547B |
| 7253 | 4822 130 44568 | BC557B |
| 7255 | 4822 130 40959 | BC547B |
| 7260 | 4822 130 40959 | BC547B |
| 7263 | 4822 130 40959 | BC547B |
| 7263 | 4822 130 40981 | BC337-25 |
| 7265 | 4822 130 41691 | BC556B |
| 7266 | 4822 130 44568 | BC557B |
| 7268 | 4822 130 40959 | BC547B |
| 7280 | 4822 130 40959 | BC547B |
| 7282 | 4822 130 41246 | BC327-25 |
| 7282 | 4822 130 41327 | BC327-40 |
| 7286 | 4822 130 41246 | BC327-25 |
| 7286 | 4822 130 41327 | BC327-40 |
| 7290 | 4822 130 41246 | BC327-25 |
| 7323 | 4822 130 44461 | BC546B |
| 7324 | 4822 130 44461 | BC546B |
| 7325 | 4822 130 40959 | BC547B |
| 7326 | 4822 130 40959 | BC547B |
| 7327 | 4822 130 44461 | BC546B |
| 7350 | 4822 130 41691 | BC556B |
| 7901 | 4822 130 41246 | BC327-25 |
| 7902 | 4822 130 40959 | BC547B |

### INTEGRATED CIRCUITS

| | | |
|---|---|---|
| 7281 | 4822 209 31841 | L7805CP |
| 7329 | 4822 209 17384 | POWER AMPLIFIER STK411-230E |

## *ELECTRICAL PARTSLIST POWER SUPPLY CDR BOARD*

### MISCELLANEOUS

| | | |
|---|---|---|
| 1350 | 4822 071 52502⚠ | FUSE T 2,5A |
| 1353 | 4822 071 53151⚠ | FUSE 315mA |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2350 | 4822 124 11947 | 10µF | 20% | 16V |
| 2351 | 4822 124 40433 | 47µF | 20% | 25V |
| 2352 | 4822 124 12328 | 6800µF | 20% | 16V |
| 2353 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2354 | 4822 124 80791 | 470µF | 20% | 16V |
| 2355 | 4822 124 80791 | 470µF | 20% | 16V |
| 2356 | 5322 121 42386 | 100nF | 5% | 63V |
| 2357 | 5322 121 42386 | 100nF | 5% | 63V |
| 2358 | 4822 124 81144 | 1000µF | 20% | 16V |
| 2359 | 4822 124 40433 | 47µF | 20% | 25V |
| 2360 | 4822 124 41584 | 100µF | 20% | 10V |
| 2361 | 4822 124 23052 | 100µF | 20% | 16V |
| 2363 | 4822 124 23052 | 100µF | 20% | 16V |

### RESISTORS

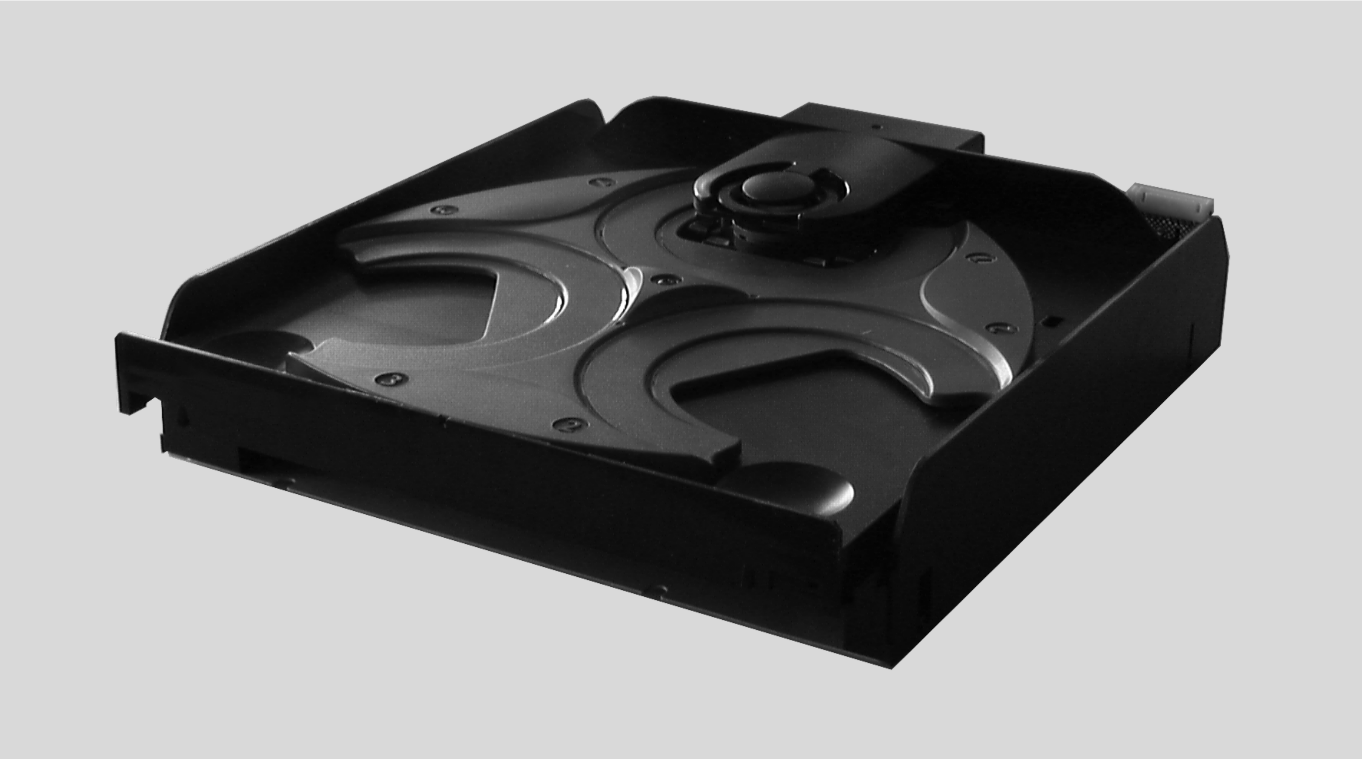
| | | | | |
|---|---|---|---|---|
| 2362 | 4822 117 12063 | 10kΩ | | NTC |
| 3350 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3351 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3352 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3353 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3354 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3355 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3356 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3357 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3358 | 4822 053 11151⚠ | 150Ω | 5% | 2W |
| 3359 | 4822 050 21101 | 110Ω | 1% | 0,6W |
| 3360 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3361 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3362 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3363 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3364 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3365 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3366 | 4822 052 10568⚠ | 5,6Ω | 5% | 0,33W |
| 3369 | 4822 116 52226 | 560Ω | 5% | 0,5W |
| 3370 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |
| 3371 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3372 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3373 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3374 | 4822 116 83882 | 39kΩ | 5% | 0,5W |
| 3375 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3376 | 4822 053 11151⚠ | 150Ω | 5% | 2W |
| 3377 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |
| 3378 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |

### DIODES

| | | |
|---|---|---|
| 6350 | 5322 130 80686 | 1N5392 |
| 6351 | 5322 130 80686 | 1N5392 |
| 6352 | 5322 130 80686 | 1N5392 |
| 6353 | 5322 130 80686 | 1N5392 |
| 6354 | 3198 010 53980 | DIO REG BZX79-B3V9 |
| 6355 | 4822 130 34173 | BZX79-B5V6 |
| 6356 | 5322 130 31504 | BZX79-B3V3 |
| 6357 | 4822 130 31878 | 1N4003G |
| 6358 | 4822 130 31878 | 1N4003G |
| 6359 | 4822 130 30621 | 1N4148 |
| 6360 | 4822 130 31878 | 1N4003G |
| 6361 | 4822 130 31878 | 1N4003G |
| 6362 | 4822 130 34174 | BZX79-B4V7 |
| 6363 | 4822 130 31981 | BZX79-B3V9 |
| 6364 | 4822 130 34233 | BZX79-B5V1 |
| 6365 | 4822 130 31981 | BZX79-B3V9 |

### TRANSISTORS

| | | |
|---|---|---|
| 7350 | 9336 500 90126 | BC557C |
| 7351 | 4822 130 40995 | BD438 |
| 7352 | 4822 130 40995 | BD438 |
| 7353 | 4822 130 44503 | BC547C |
| 7354 | 4822 130 44503 | BC547C |
| 7355 | 4822 130 41344 | BC337-40 |
| 7356 | 4822 130 44503 | BC547C |
| 7357 | 4822 130 41327 | BC327-40 |
| 7358 | 4822 130 41246 | BC327-25 |
| 7359 | 9336 500 90126 | BC557C |
| 7360 | 4822 130 44503 | BC547C |



# 3CDC99-DS Module

## (3 Disc Carousel Changer)

stage .4

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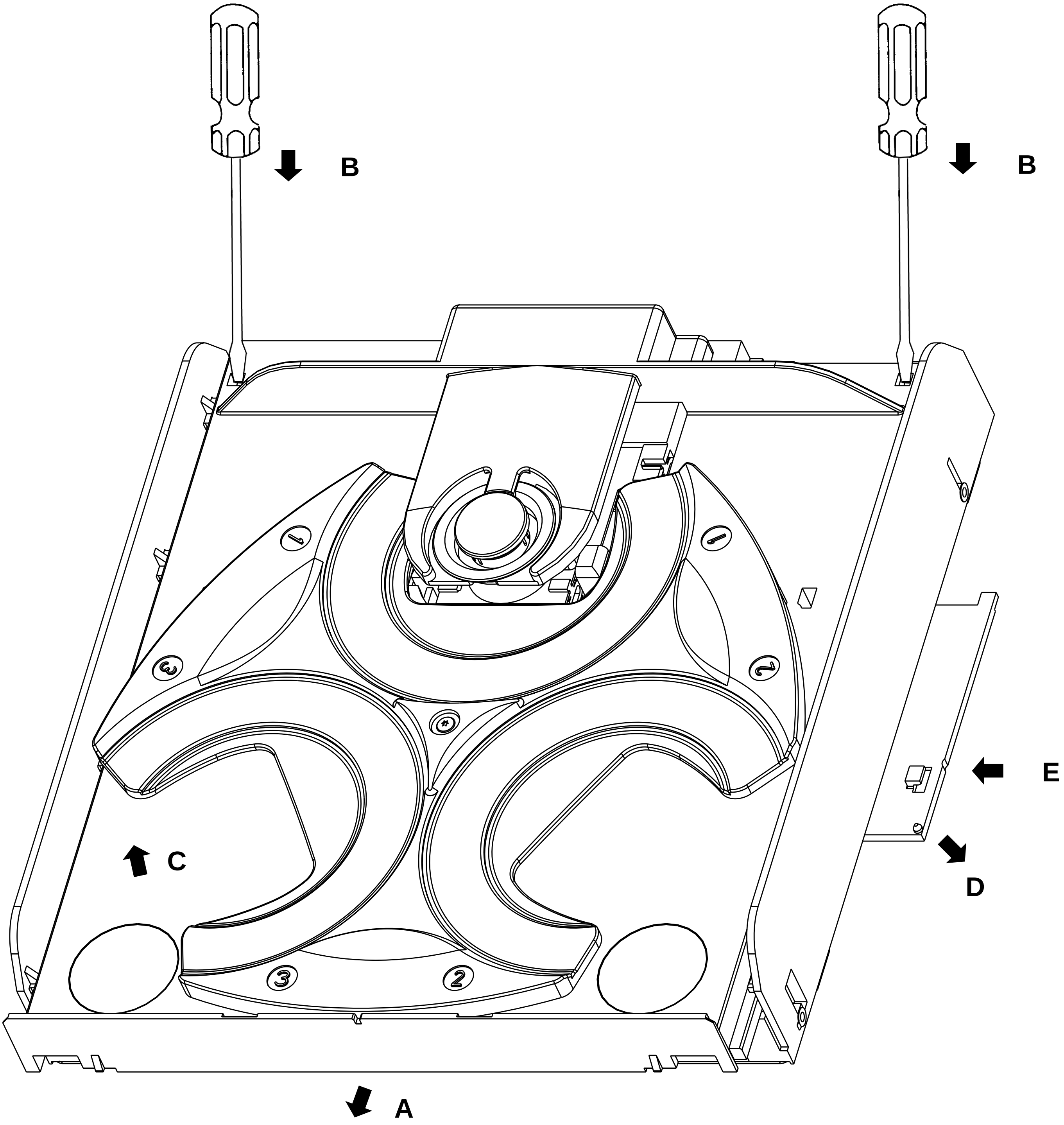
# Dismantling Hints



## Dismantling of Drawer

→ **A** Pull drawer outwards
→ **B** Unlock drawer with screwdriver
→ **C** Lift drawer to demount from chassis

## Dismantling of Flex Plate

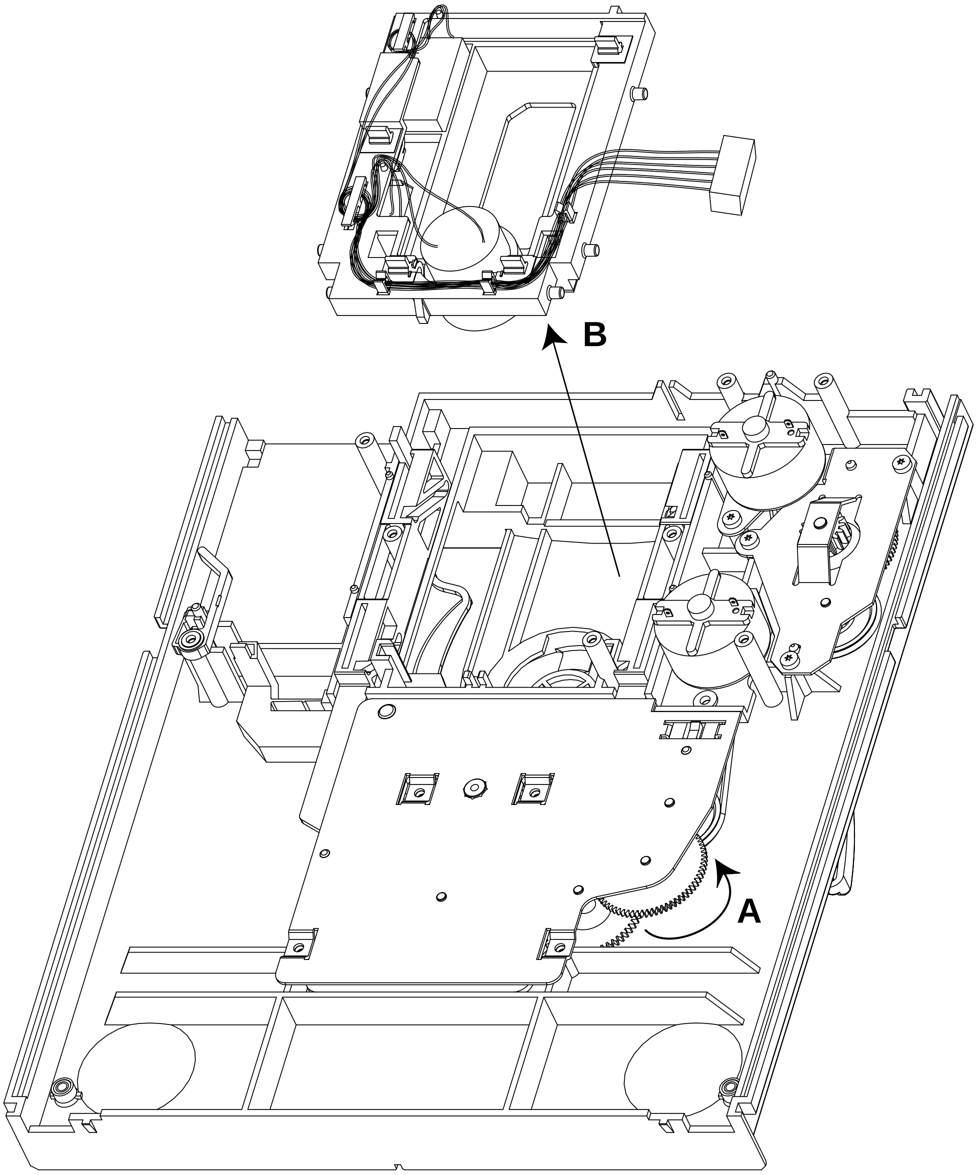
→ **D** Lift plate to unlock pin from bottom plate
→ **E** Move plate inwards to demount from bottom plate

## Servicing Hints

### Replacement of CD Drive

See also exploded view of changer mechanism.

1. Dismantle printed circuit board: remove 5 screws.
2. Disconnect flexfoil cable and JST connector.
   **Pay attention to WARNING!**
3. Loosen 2 screws (pos 107,108) and remove CD drive-lockings (pos 105,106).
4. Turn gearwheel (pos 42) of disc change mechanism by finger to move CD drive support in upper position as shown in picture below Ⓐ.
5. Dismantle CD drive support (pos 95) Ⓑ.
6. Replace CD drive (pos 100). The wire tree of JST connector has to be desoldered and resoldered on the new CD drive again.

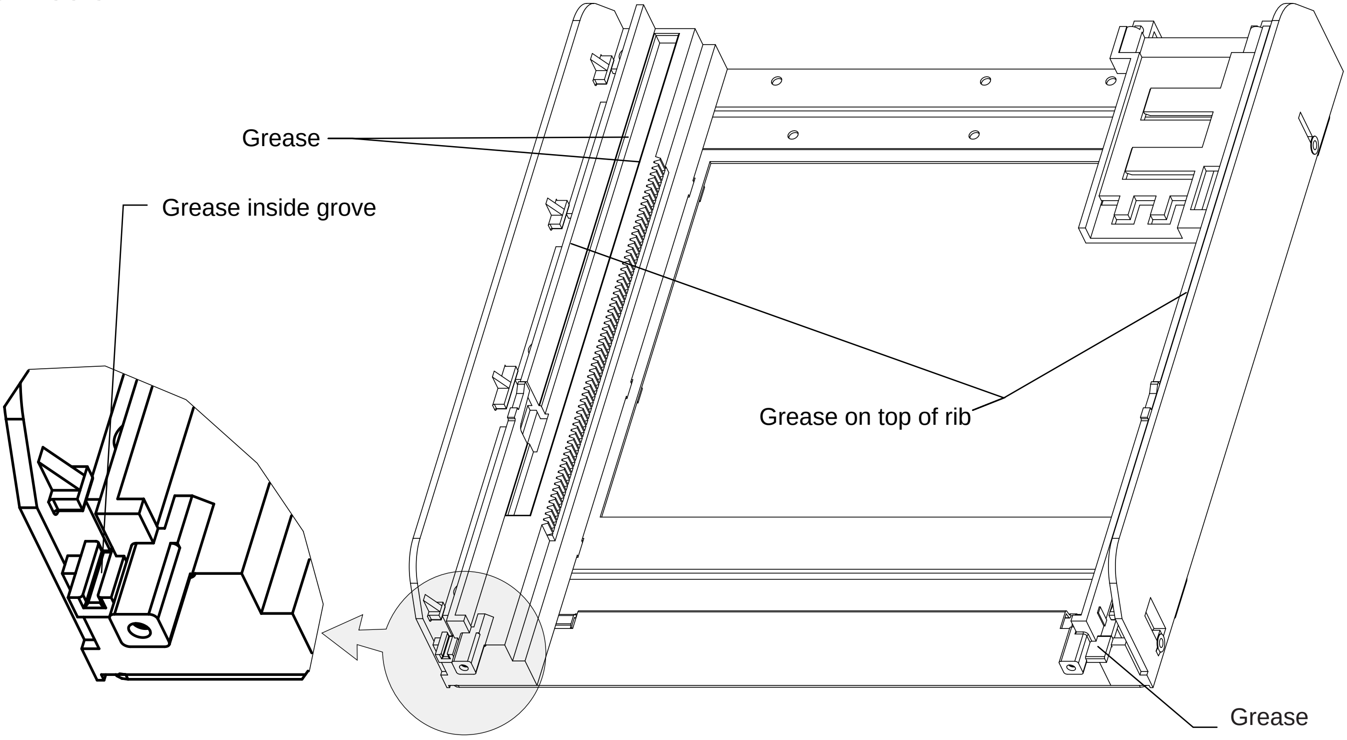


### Mounting of Carousel

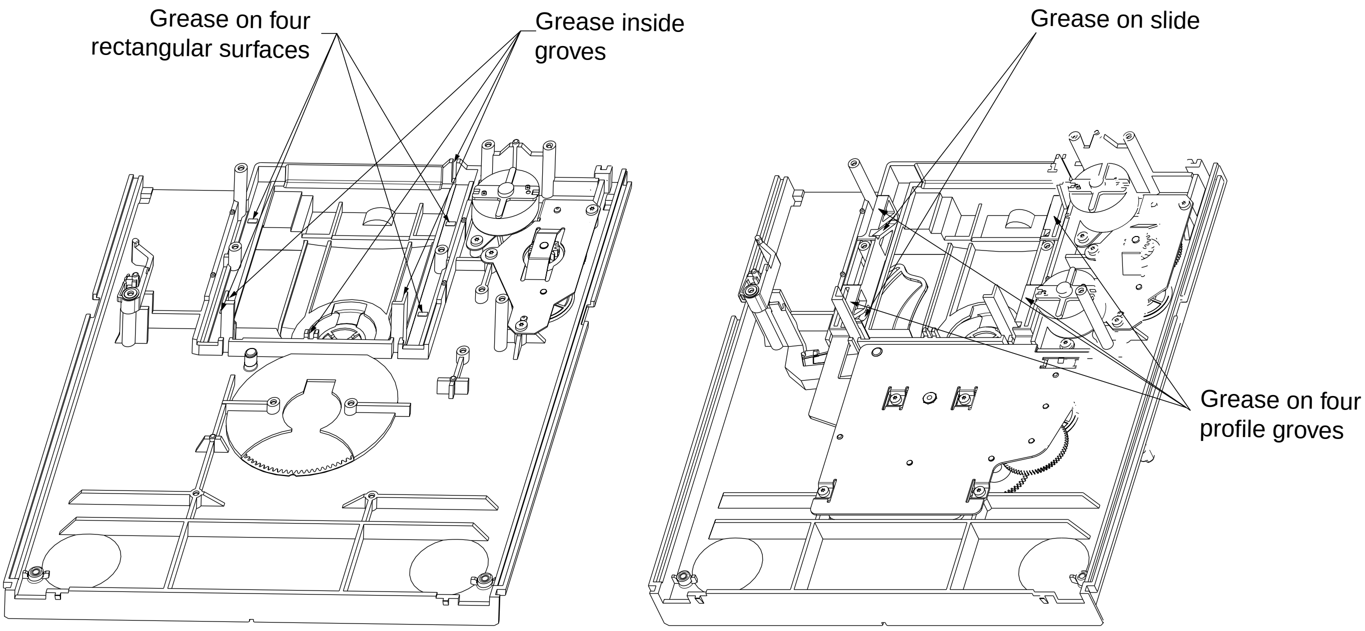
1. Turn gearwheel (pos 42) of disc change mechanism by finger until CD drive is in play position.
2. Mount carousel (pos 115) so that disc is positioned right on turntable. Carousel position number doesn´t matter.

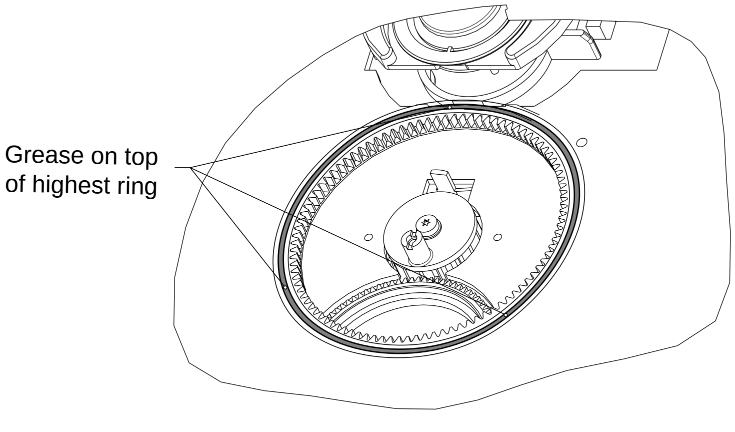
# Lubrication Instructions

## CHASSIS

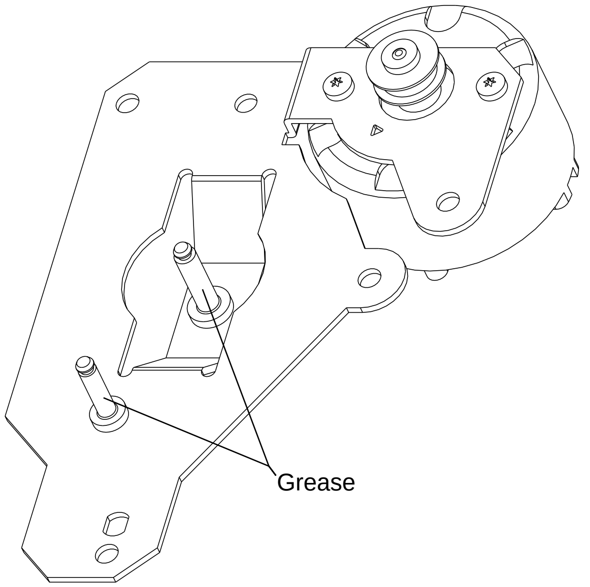

Grease
Grease inside grove
Grease on top of rib
Grease

## DRAWER

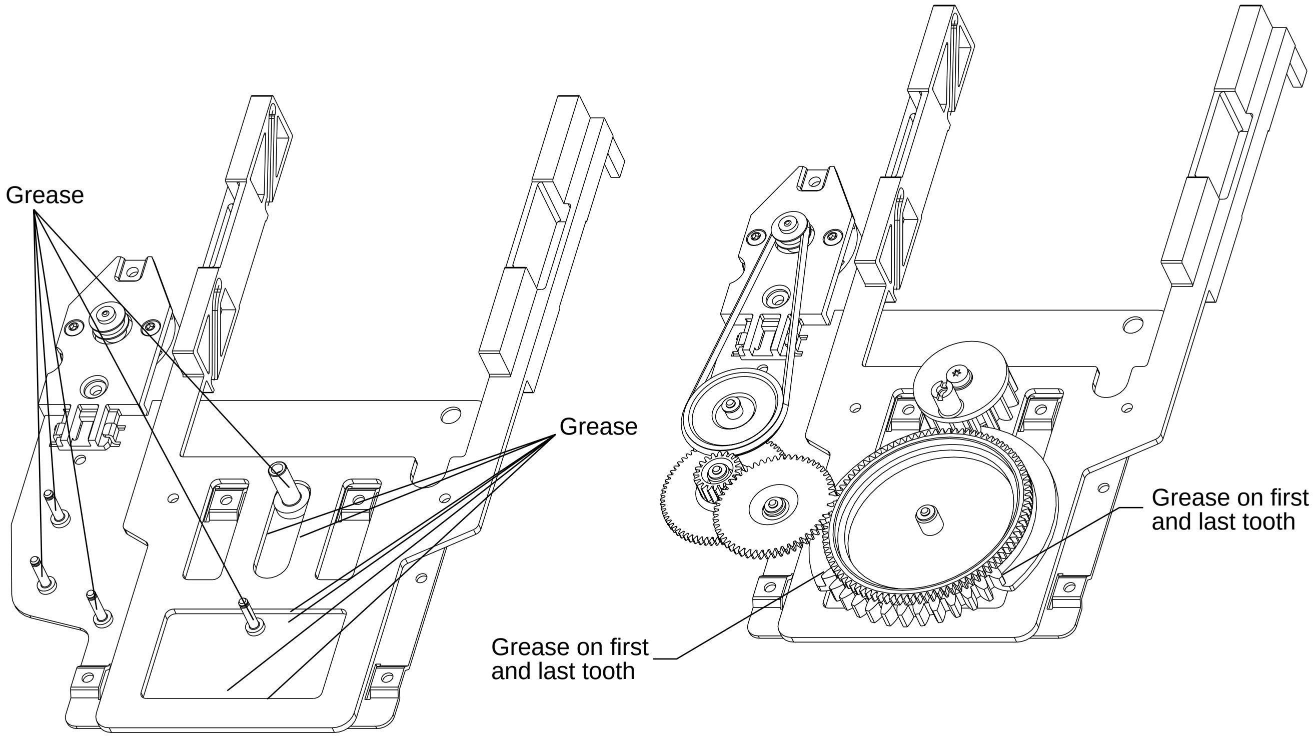

Grease on four rectangular surfaces
Grease inside groves
Grease on slide
Grease on four profile groves


Grease on top of highest ring

## DRAWER MECHANISM



## DISC CHANGE MECHANISM


Grease
Grease
Grease on first and last tooth
Grease on first and last tooth

Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

## WARNING

***CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CD MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE***
- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

***ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.***

The following steps have to be done when replacing the CD mechanism:
1. Disconnect flexfoil cable from old CD drive
2. Put a paper clip onto the flexfoil cable to short-circuit connections (fig.1)
3. Remove old CD drive
4. Remove paper clip from flexfoil cable
5. Connect flexfoil cable to new CD drive
6. Position new CD drive on its studs
7. Remove soldered short-circuit from Laserunit (see below)

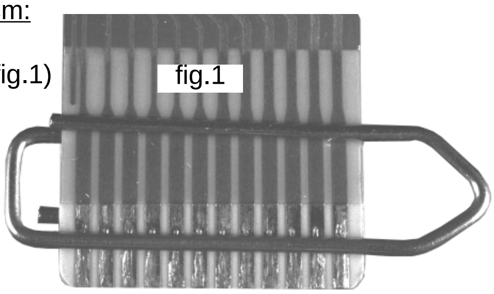
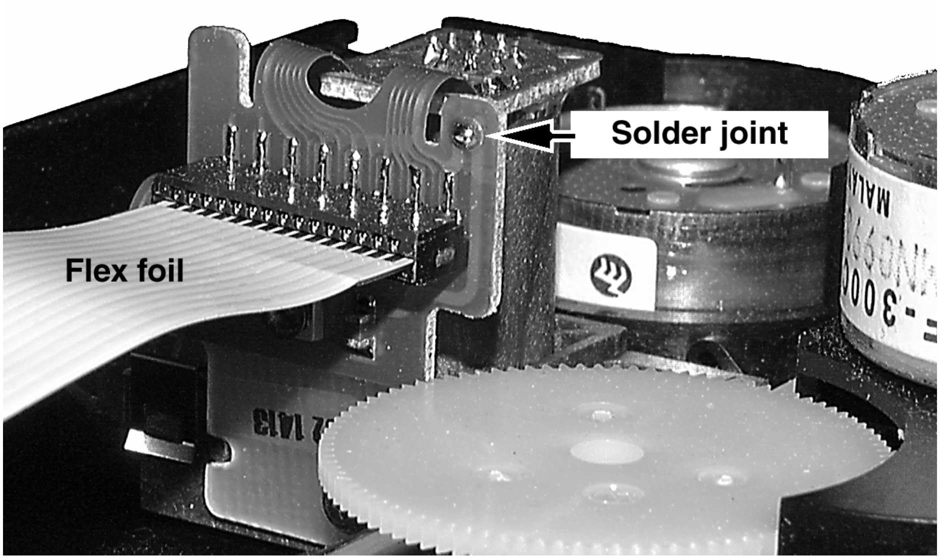
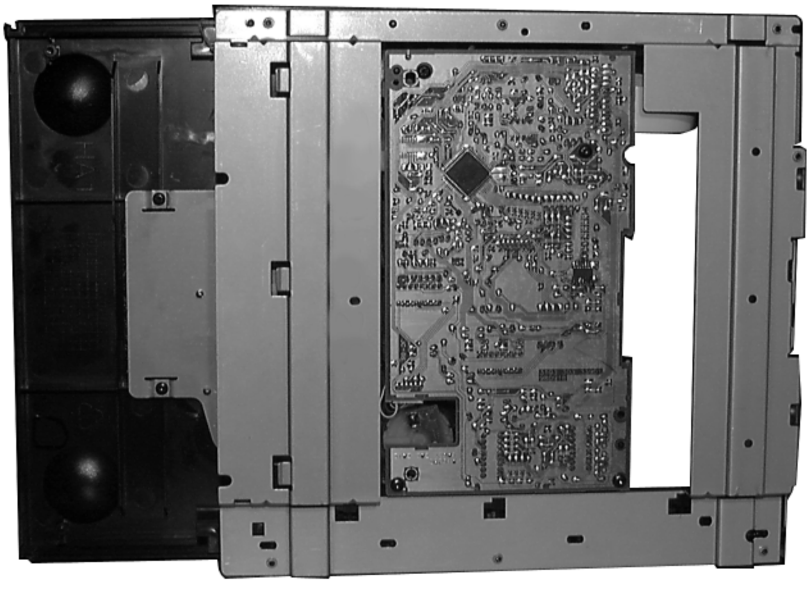


fig.1

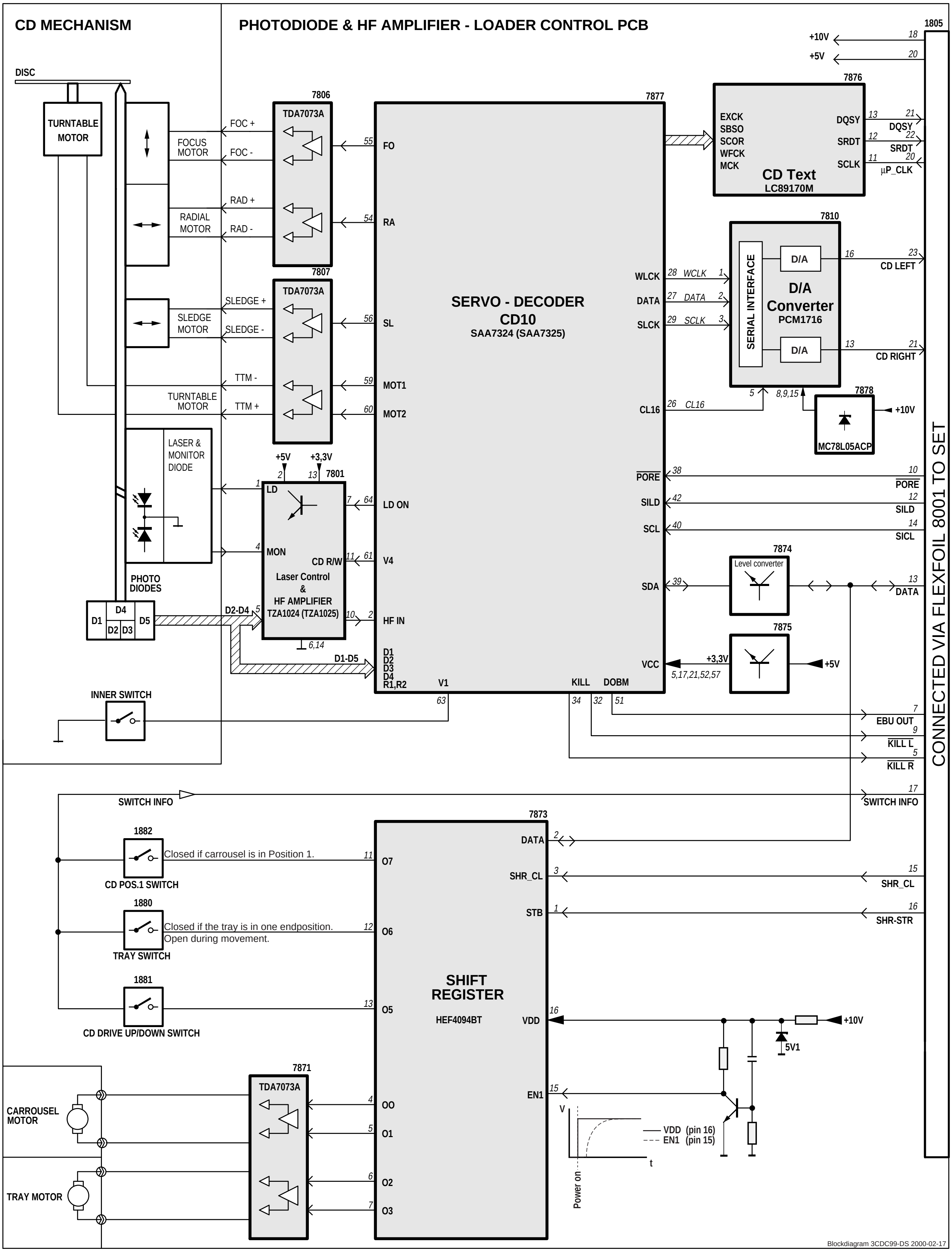
**Attention:** The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laser diode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connecting the drive to the set.



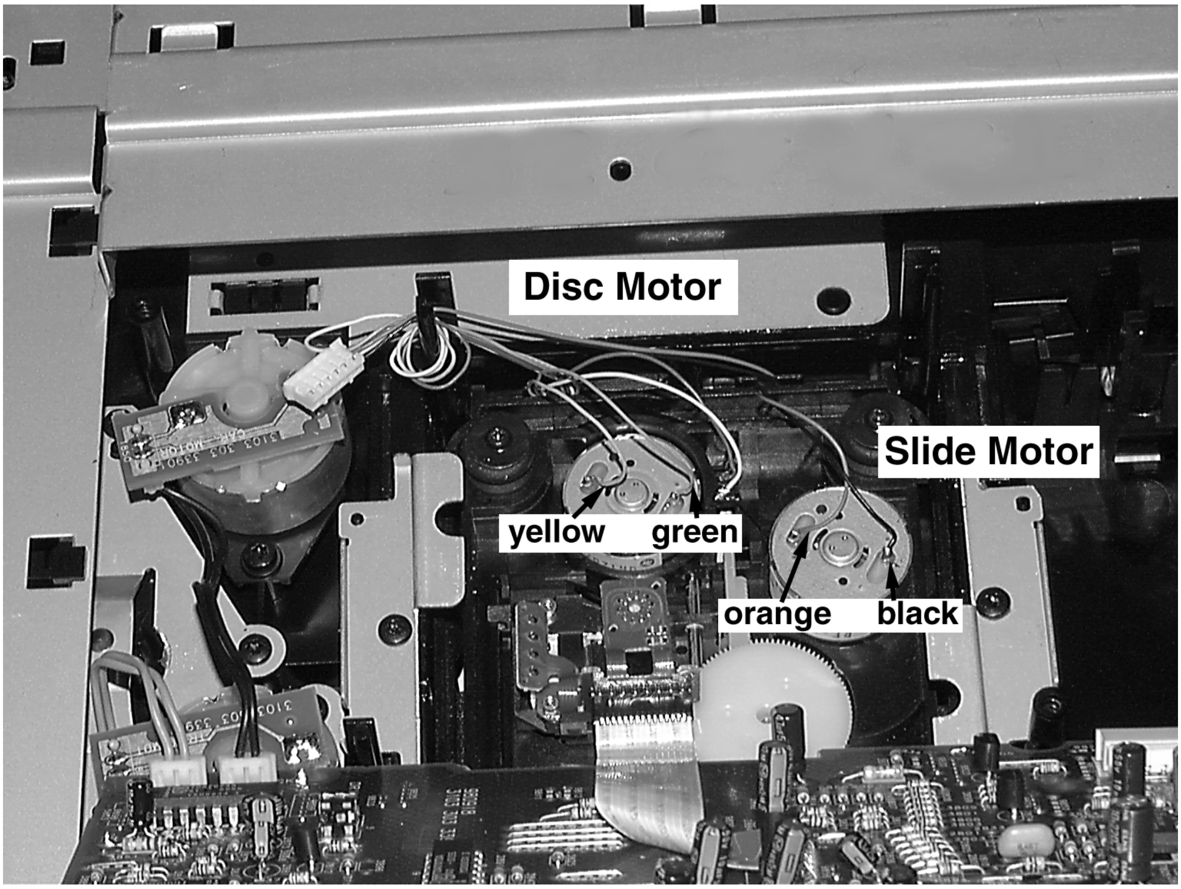
## Service Position



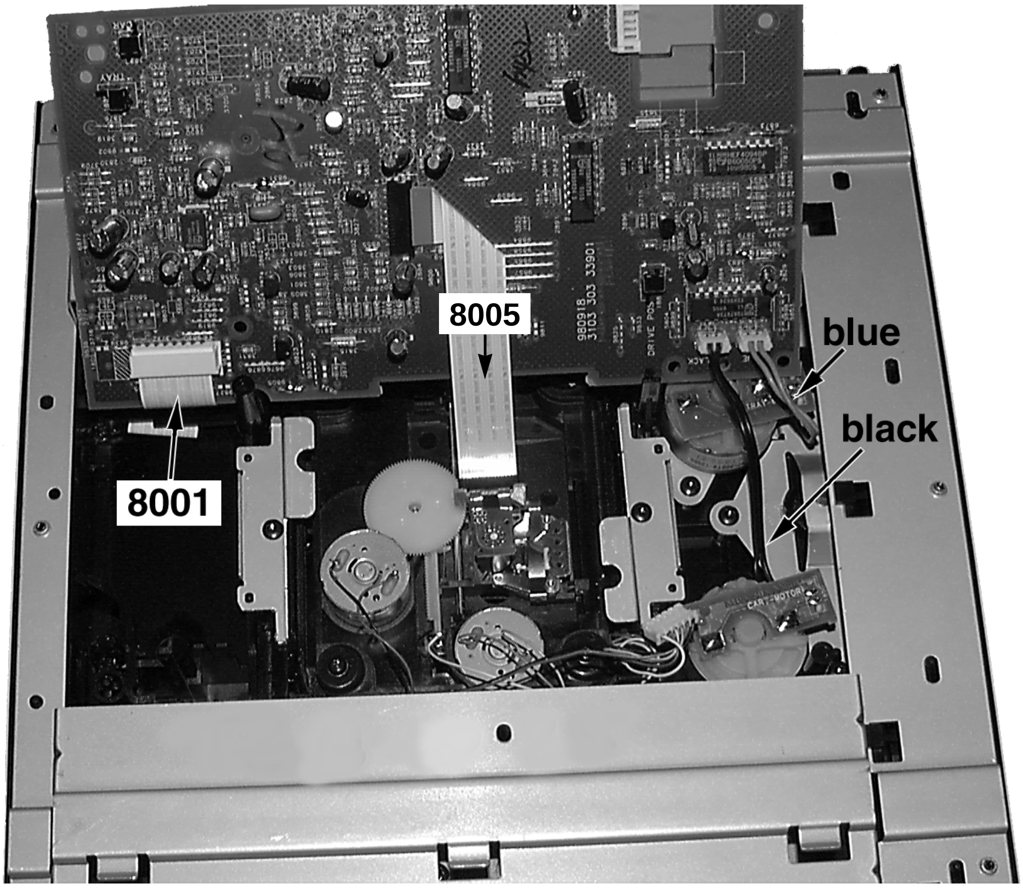
# Blockdiagram


CD MECHANISM
PHOTODIODE & HF AMPLIFIER - LOADER CONTROL PCB
1805
+10V
+5V
18
20
DISC
TURNTABLE MOTOR
FOCUS MOTOR
FOC +
FOC -
RADIAL MOTOR
RAD +
RAD -
SLEDGE MOTOR
SLEDGE +
SLEDGE -
TURNTABLE MOTOR
TTM -
TTM +
LASER & MONITOR DIODE
PHOTO DIODES
D1
D2
D3
D4
D5
D2-D4
D1-D5
INNER SWITCH
7806
TDA7073A
7807
TDA7073A
7801
+5V
+3,3V
LD
MON
CD R/W
Laser Control & HF AMPLIFIER
TZA1024 (TZA1025)
6,14
7877
SERVO - DECODER CD10
SAA7324 (SAA7325)
FO
RA
SL
MOT1
MOT2
LD ON
V4
HF IN
D1 D2 D3 D4 R1,R2
V1
KILL
DOBM
WLCK
DATA
SLCK
CL16
PORE
SILD
SCL
SDA
VCC
55
54
56
59
60
64
61
63
34
32
51
28 WCLK
27 DATA
29 SCLK
26 CL16
38
42
40
39
5,17,21,52,57
7876
EXCK
SBSO
SCOR
WFCK
MCK
DQSY
SRDT
SCLK
CD Text
LC89170M
13
12
11
21
22
20
DQSY
SRDT
µP_CLK
7810
SERIAL INTERFACE
D/A
D/A Converter
PCM1716
16
23
CD LEFT
13
21
CD RIGHT
8,9,15
7878
MC78L05ACP
+10V
10
PORE
12
SILD
14
SICL
7874
Level converter
13
DATA
7875
+3,3V
+5V
7
EBU OUT
9
KILL L
5
KILL R
17
SWITCH INFO
CONNECTED VIA FLEXFOIL 8001 TO SET
SWITCH INFO
1882
Closed if carrousel is in Position 1.
CD POS.1 SWITCH
1880
Closed if the tray is in one endposition.
Open during movement.
TRAY SWITCH
1881
CD DRIVE UP/DOWN SWITCH
7873
SHIFT REGISTER
HEF4094BT
O7
O6
O5
OO
O1
O2
O3
DATA
SHR_CL
STB
VDD
EN1
15
SHR_CL
16
SHR-STR
+10V
5V1
V
t
Power on
VDD (pin 16)
EN1 (pin 15)
7871
TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
Blockdiagram 3CDC99-DS 2000-02-17

## Wiring of CD Drive

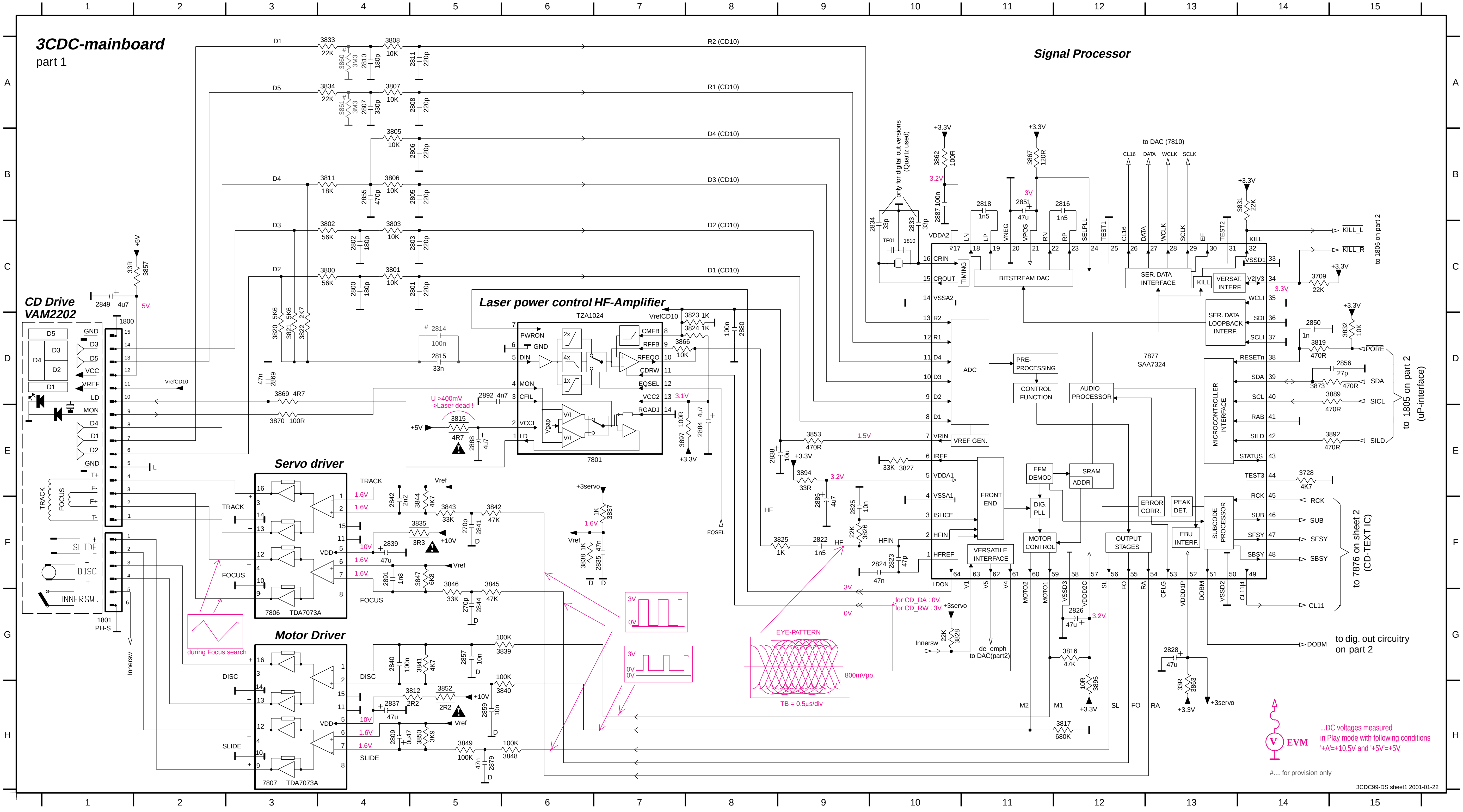

Disc Motor
Slide Motor
yellow
green
orange
black

Pict. 1

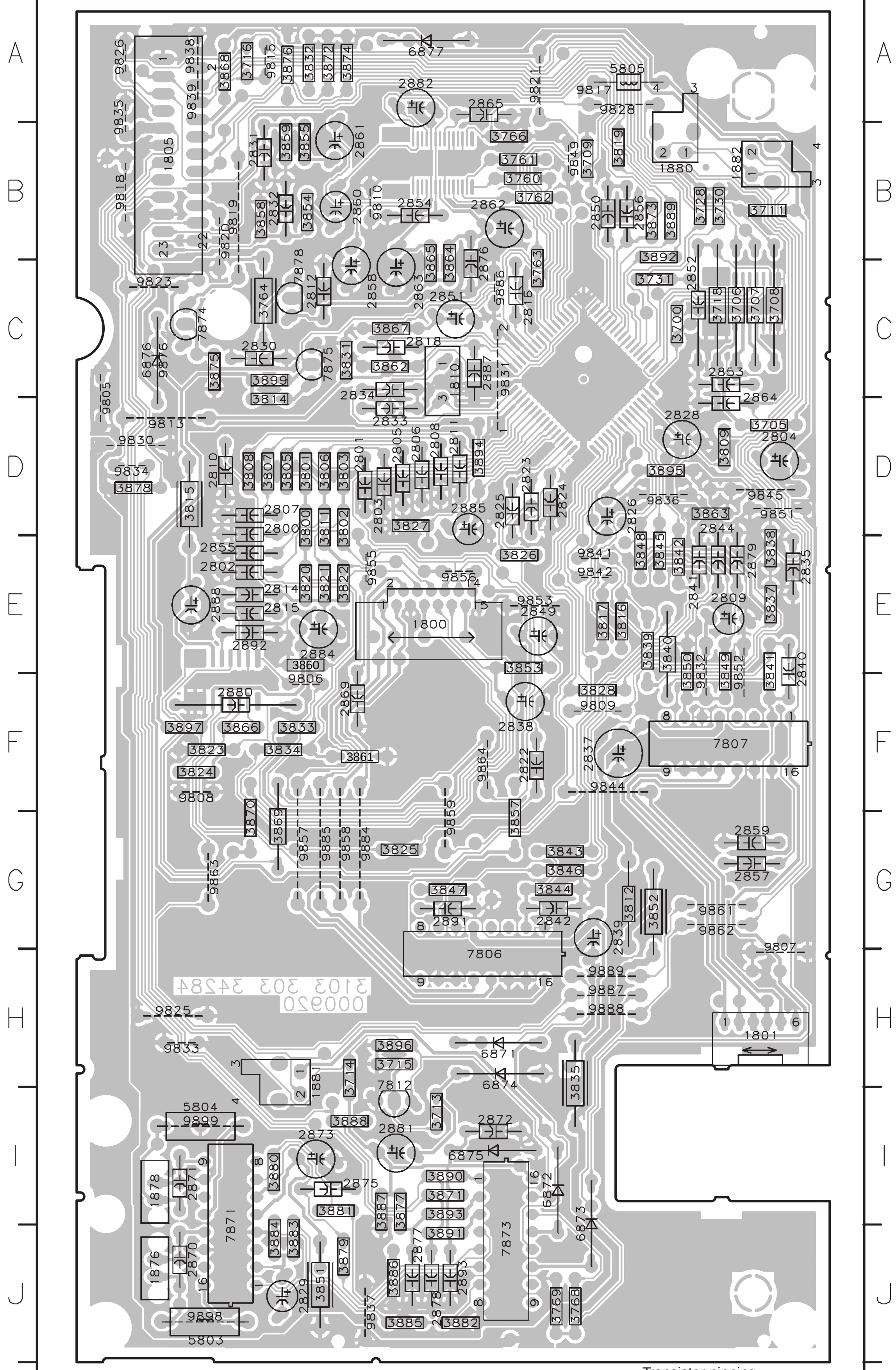

8005
8001
blue
black

Pict. 2

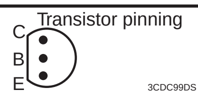
| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1800 D2 | 2803 C5 | 2810 A4 | 2822 F9 | 2833 C10 | 2840 G4 | 2851 B11 | 2879 H5 | 2891 F4 | 3802 C4 | 3811 B4 | 3820 D3 | 3826 F9 | 3834 A4 | 3841 G5 | 3847 F5 | 3857 C2 | 3867 B11 | 3894 E9 | 7877 D12 |
| 1801 G1 | 2805 B5 | 2811 A5 | 2823 F10 | 2834 C10 | 2841 F5 | 2855 B4 | 2880 D8 | 2892 D5 | 3803 C4 | 3812 H5 | 3821 D3 | 3827 E10 | 3835 F5 | 3842 F5 | 3848 H6 | 3860 A4 | 3869 D3 | 3895 H12 | |
| 1810 C10 | 2806 B5 | 2814 D5 | 2824 F10 | 2835 F7 | 2842 F4 | 2856 D15 | 2884 E8 | 3709 C14 | 3805 B4 | 3815 E5 | 3822 D3 | 3828 G10 | 3837 F7 | 3843 F5 | 3849 H5 | 3861 A4 | 3870 E3 | 3897 E7 | |
| 2800 C4 | 2807 A4 | 2815 D5 | 2825 F9 | 2837 H4 | 2844 G5 | 2857 G5 | 2885 F9 | 3728 E14 | 3806 B4 | 3816 G12 | 3823 D8 | 3831 B14 | 3838 F6 | 3844 F5 | 3850 H5 | 3862 B10 | 3873 D14 | 7801 E7 | |
| 2801 C5 | 2808 A5 | 2816 B12 | 2826 G12 | 2838 E8 | 2849 C1 | 2859 H5 | 2887 B10 | 3800 C4 | 3807 A4 | 3817 H12 | 3824 D8 | 3832 D15 | 3839 G6 | 3845 F5 | 3852 H5 | 3863 H13 | 3889 D15 | 7806 G3 | |
| 2802 C4 | 2809 H4 | 2818 B11 | 2828 G13 | 2839 F4 | 2850 D14 | 2869 D3 | 2888 E5 | 3801 C4 | 3808 A4 | 3819 D14 | 3825 F9 | 3833 A4 | 3840 H6 | 3846 F5 | 3853 E9 | 3866 D7 | 3892 E15 | 7807 H3 | |


3CDC-mainboard
part 1
Signal Processor
CD Drive VAM2202
Laser power control HF-Amplifier
TZA1024
7801
Servo driver
7806 TDA7073A
Motor Driver
7807 TDA7073A
7877 SAA7324
1800
1801 PH-S
ADC
PRE-PROCESSING
CONTROL FUNCTION
AUDIO PROCESSOR
BITSTREAM DAC
SER. DATA INTERFACE
SER. DATA LOOPBACK INTERF.
VERSAT. INTERF.
MICROCONTROLLER INTERFACE
FRONT END
EFM DEMOD
SRAM
ADDR
DIG. PLL
MOTOR CONTROL
VERSATILE INTERFACE
OUTPUT STAGES
ERROR CORR.
PEAK DET.
EBU INTERF.
SUBCODE PROCESSOR
VREF GEN.
to DAC (7810)
to 1805 on part 2
to 1805 on part 2 (uP-interface)
to 7876 on sheet 2 (CD-TEXT IC)
to dig. out circuitry on part 2
only for digital out versions (Quartz used)
U >400mV ->Laser dead !
during Focus search
EYE-PATTERN
800mVpp
TB = 0.5µs/div
for CD_DA : 0V
for CD_RW : 3V
...DC voltages measured in Play mode with following conditions '+A'=+10.5V and '+5V'=+5V
EVM
#.... for provision only
3CDC99-DS sheet1 2001-01-22

## 3CDC99 DS Board Componentside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

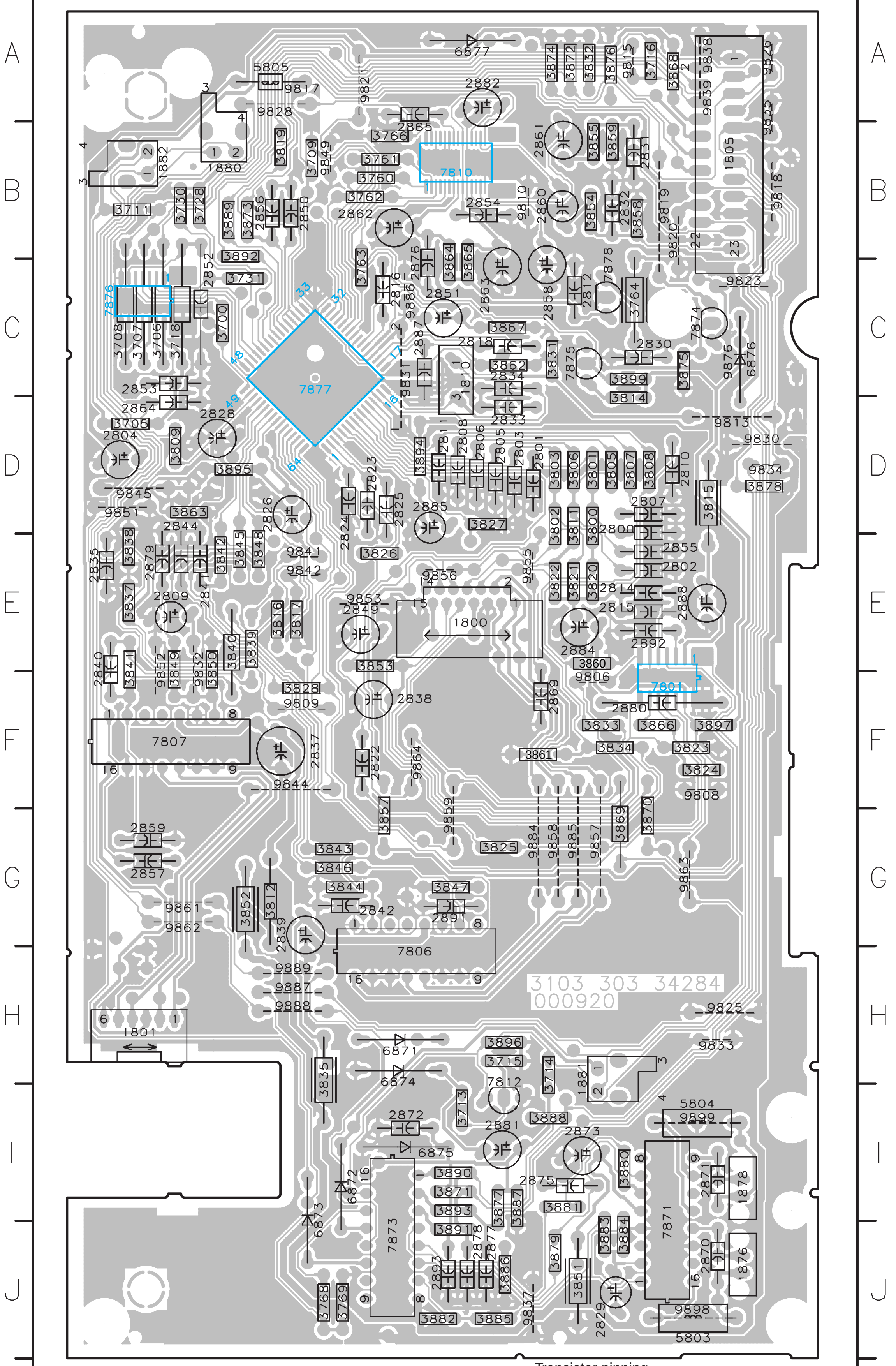


3CDC99DS Layout stage .4 2001 01 22

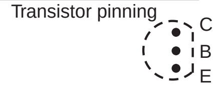
## Mapping

| | | | | | |
|---|---|---|---|---|---|
| 1800 | E3 | 3714 | H2 | 3884 | I2 |
| 1801 | H5 | 3715 | H3 | 3885 | J3 |
| 1805 | A1 | 3716 | A2 | 3886 | J3 |
| 1810 | D3 | 3718 | C5 | 3887 | I3 |
| 1876 | J1 | 3728 | B5 | 3888 | I3 |
| 1878 | I1 | 3730 | B5 | 3889 | B5 |
| 1880 | A5 | 3731 | C5 | 3890 | I3 |
| 1881 | I2 | 3760 | B3 | 3891 | I3 |
| 1882 | B5 | 3761 | B3 | 3892 | C4 |
| 2800 | D2 | 3762 | B3 | 3893 | I3 |
| 2801 | D3 | 3763 | C4 | 3894 | D4 |
| 2802 | E2 | 3764 | C2 | 3895 | D5 |
| 2803 | D3 | 3766 | B3 | 3896 | H3 |
| 2804 | D5 | 3768 | J4 | 3897 | F1 |
| 2805 | D3 | 3769 | J4 | 3899 | C2 |
| 2806 | D3 | 3800 | D2 | 5803 | J1 |
| 2807 | D2 | 3801 | D2 | 5804 | I1 |
| 2808 | D3 | 3802 | D3 | 5805 | A5 |
| 2809 | E5 | 3803 | D2 | 6871 | H4 |
| 2810 | D2 | 3805 | D2 | 6872 | I4 |
| 2811 | D3 | 3806 | D2 | 6873 | I4 |
| 2812 | C2 | 3807 | D2 | 6874 | H4 |
| 2814 | E2 | 3808 | D2 | 6875 | I4 |
| 2815 | E1 | 3809 | D5 | 6876 | C1 |
| 2816 | C4 | 3811 | D2 | 6877 | A3 |
| 2818 | C3 | 3812 | G4 | 7801 | F2 |
| 2822 | F4 | 3814 | D2 | 7806 | H3 |
| 2823 | D4 | 3815 | D1 | 7807 | F5 |
| 2824 | D4 | 3816 | E5 | 7810 | B3 |
| 2825 | D4 | 3817 | E4 | 7812 | H3 |
| 2826 | D4 | 3819 | B5 | 7871 | I1 |
| 2828 | D5 | 3820 | E2 | 7873 | J4 |
| 2829 | J2 | 3821 | E2 | 7874 | C1 |
| 2830 | C2 | 3822 | E3 | 7875 | C2 |
| 2831 | B2 | 3823 | F1 | 7876 | C5 |
| 2832 | B2 | 3824 | F1 | 7877 | C4 |
| 2833 | D2 | 3825 | G3 | 7878 | C2 |
| 2834 | C2 | 3826 | E4 | 9805 | C1 |
| 2835 | E5 | 3827 | E3 | 9806 | E2 |
| 2837 | F4 | 3828 | F4 | 9807 | G5 |
| 2838 | F4 | 3831 | C2 | 9808 | F1 |
| 2839 | H4 | 3832 | A2 | 9809 | F4 |
| 2840 | E5 | 3833 | F2 | 9810 | B3 |
| 2841 | E5 | 3834 | F2 | 9813 | D1 |
| 2842 | G4 | 3835 | H4 | 9815 | A2 |
| 2844 | E5 | 3837 | E5 | 9817 | A5 |
| 2849 | E4 | 3838 | D5 | 9818 | B1 |
| 2850 | B4 | 3839 | E5 | 9819 | B2 |
| 2851 | C3 | 3840 | E5 | 9820 | B2 |
| 2852 | C5 | 3841 | E5 | 9821 | A4 |
| 2853 | C5 | 3842 | E5 | 9823 | C1 |
| 2854 | B3 | 3843 | G4 | 9825 | H1 |
| 2855 | E2 | 3844 | G4 | 9826 | A1 |
| 2856 | C4 | 3845 | E5 | 9828 | A5 |
| 2857 | G5 | 3846 | G4 | 9830 | D1 |
| 2858 | C3 | 3847 | G3 | 9831 | C4 |
| 2859 | G5 | 3848 | E5 | 9832 | E5 |
| 2860 | B3 | 3849 | E5 | 9833 | H1 |
| 2861 | A2 | 3850 | E5 | 9834 | D1 |
| 2862 | B4 | 3851 | J2 | 9835 | A1 |
| 2863 | C3 | 3852 | G5 | 9836 | D5 |
| 2864 | D5 | 3853 | F4 | 9837 | J3 |
| 2865 | A3 | 3854 | B2 | 9838 | A1 |
| 2869 | F2 | 3855 | B2 | 9839 | A1 |
| 2870 | J1 | 3857 | G4 | 9841 | E4 |
| 2871 | I1 | 3858 | B2 | 9842 | E4 |
| 2872 | I4 | 3859 | A2 | 9844 | F4 |
| 2873 | I2 | 3860 | E2 | 9845 | D5 |
| 2875 | I3 | 3861 | F3 | 9849 | A4 |
| 2876 | B3 | 3862 | C3 | 9851 | D5 |
| 2877 | J3 | 3863 | D5 | 9852 | E5 |
| 2878 | J3 | 3864 | B3 | 9853 | E4 |
| 2879 | E5 | 3865 | C3 | 9855 | E3 |
| 2880 | F2 | 3866 | F2 | 9856 | E3 |
| 2881 | I3 | 3867 | C3 | 9857 | G2 |
| 2882 | A3 | 3868 | B2 | 9858 | G3 |
| 2884 | E2 | 3869 | G2 | 9859 | G3 |
| 2885 | E3 | 3870 | G2 | 9861 | G5 |
| 2887 | C4 | 3871 | I3 | 9862 | G5 |
| 2888 | E1 | 3872 | A2 | 9863 | G2 |
| 2891 | G3 | 3873 | B5 | 9864 | F3 |
| 2892 | E2 | 3874 | A3 | 9876 | C1 |
| 2893 | J3 | 3875 | C1 | 9884 | G3 |
| 3700 | C5 | 3876 | A2 | 9885 | G2 |
| 3705 | D5 | 3877 | I3 | 9886 | C3 |
| 3706 | C5 | 3878 | D1 | 9887 | H4 |
| 3707 | C5 | 3879 | J3 | 9888 | H4 |
| 3708 | C5 | 3880 | I2 | 9889 | H4 |
| 3709 | B4 | 3881 | I2 | 9898 | J1 |
| 3711 | B5 | 3882 | J3 | 9899 | I1 |
| 3713 | I3 | 3883 | J2 | | |

## 3CDC99 DS Board Copperside view



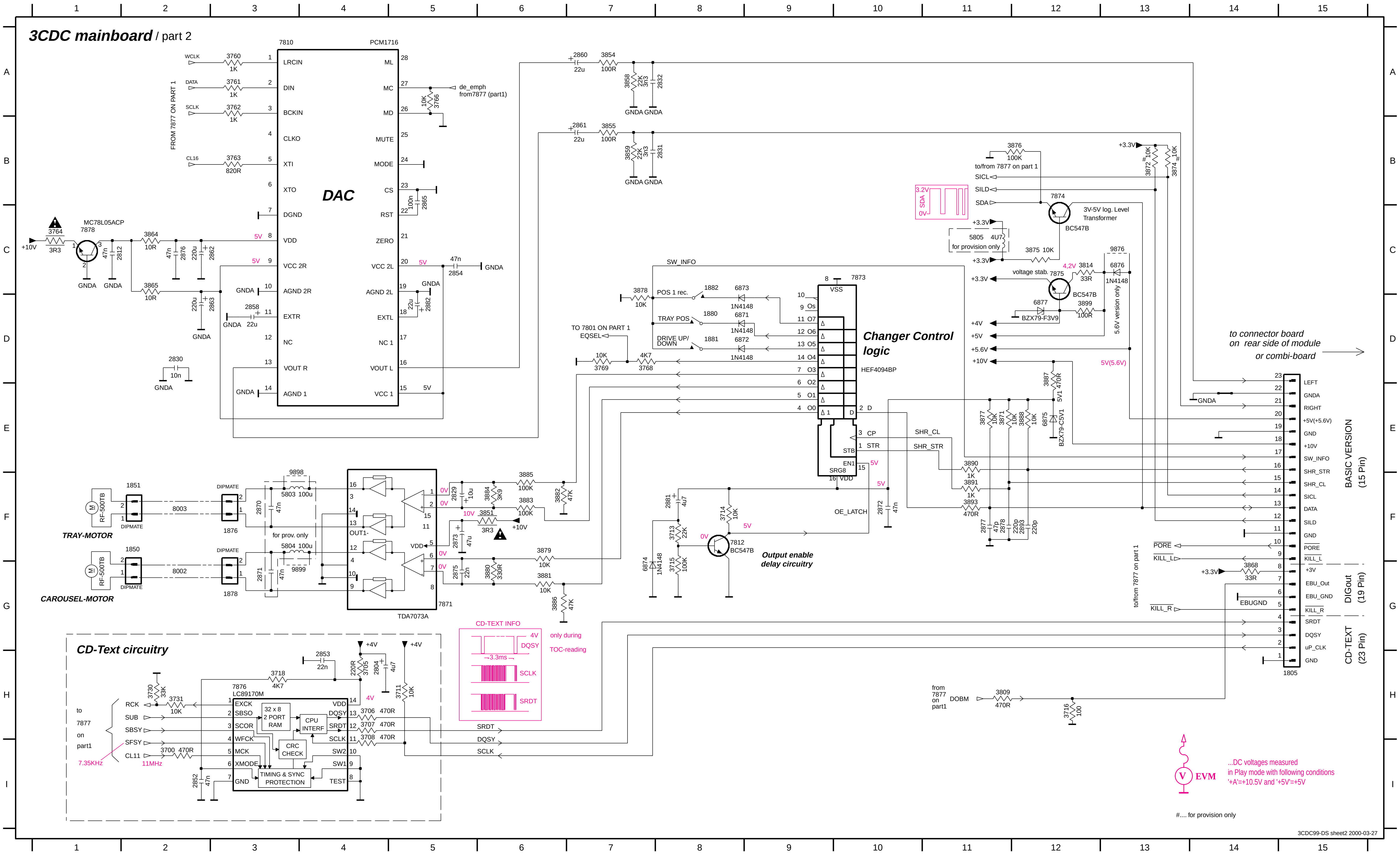
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

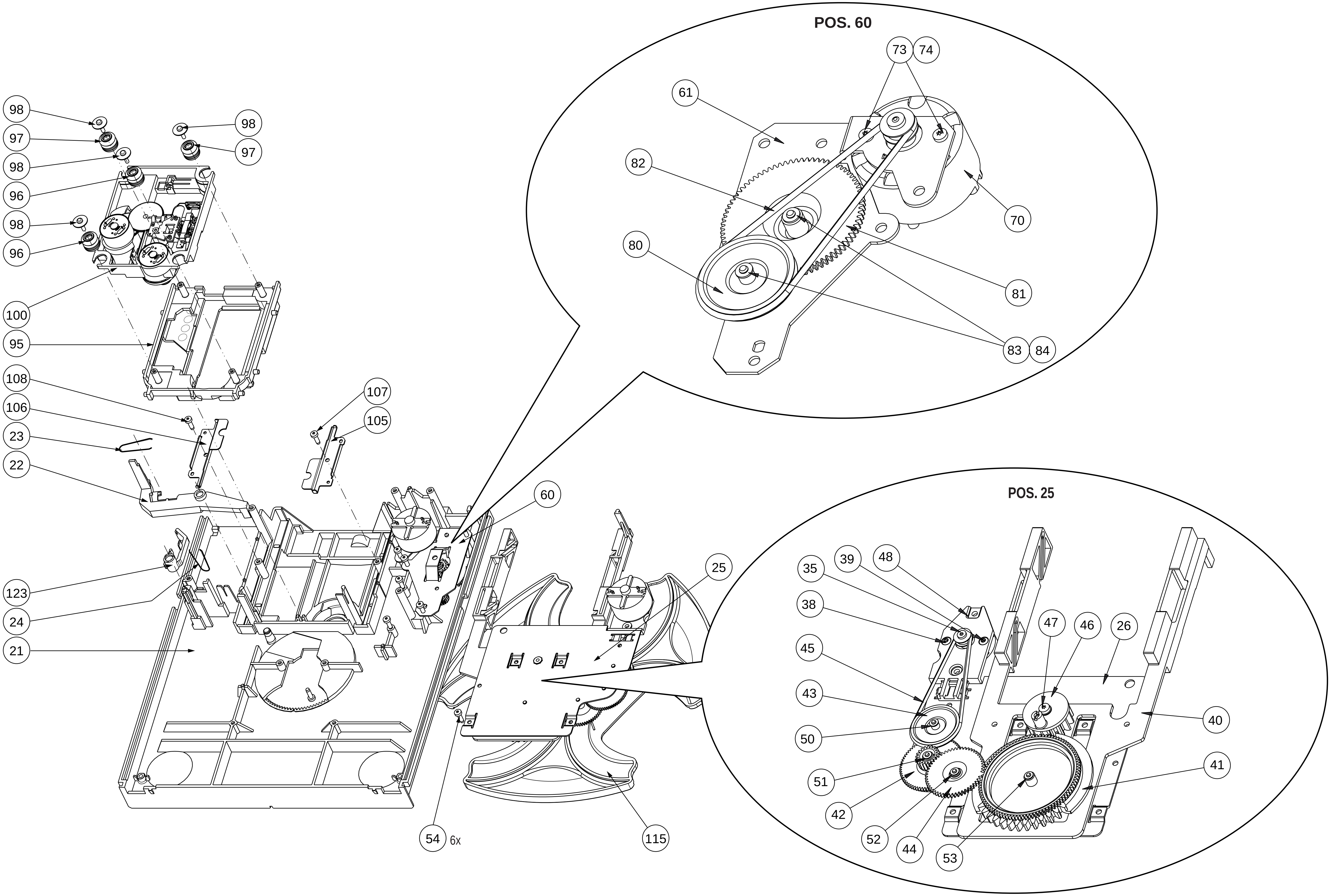


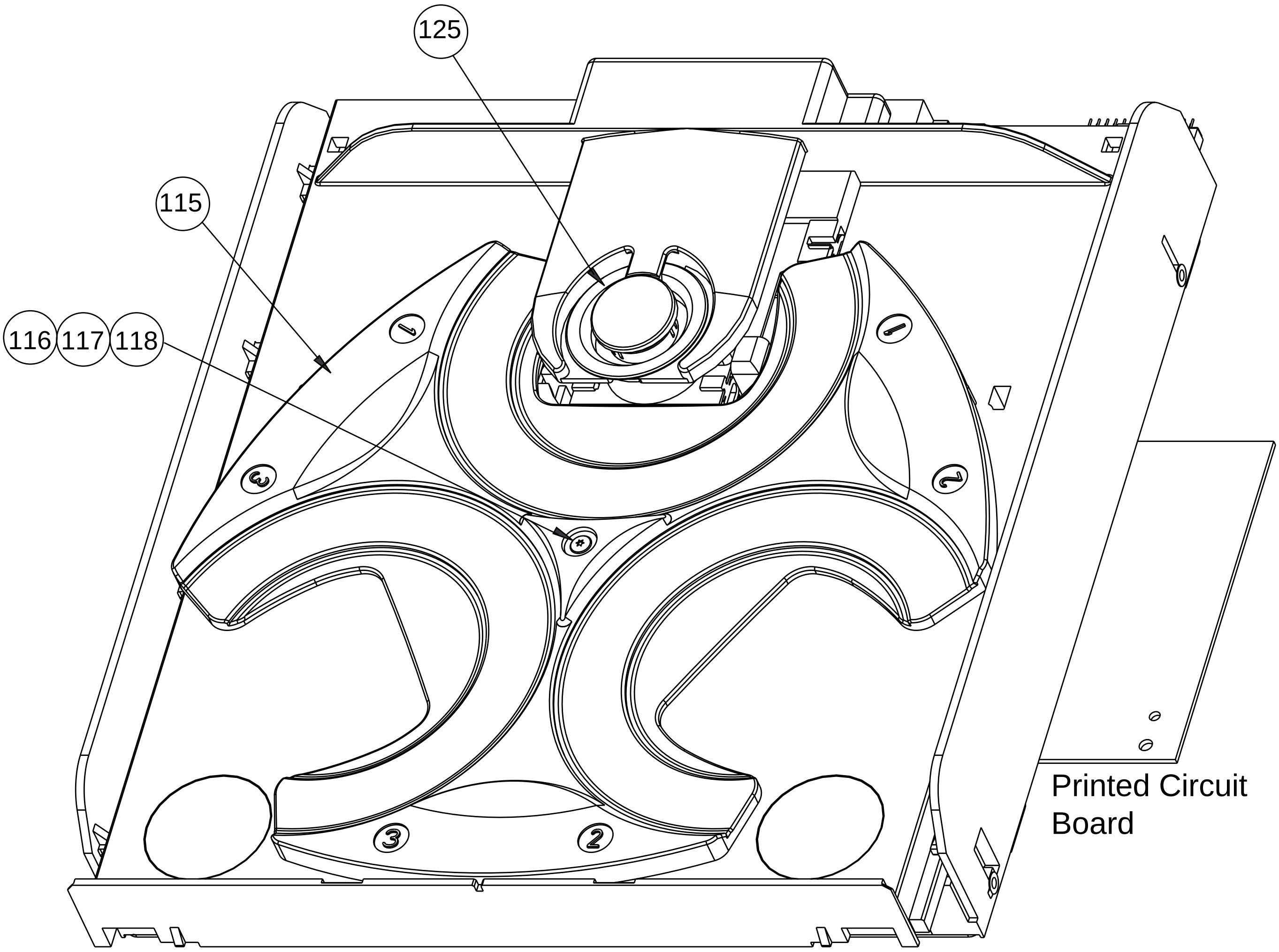
3CDC99DS Layout stage .4 2001 01 22

| | |
|---|---|
| 1805 | H15 |
| 1876 | F3 |
| 1878 | G3 |
| 1880 | D8 |
| 1881 | D8 |
| 1882 | C8 |
| 2804 | H4 |
| 2812 | C1 |
| 2829 | F5 |
| 2830 | D2 |
| 2831 | B8 |
| 2832 | A8 |
| 2852 | I2 |
| 2853 | H4 |
| 2854 | C5 |
| 2858 | D3 |
| 2860 | A7 |
| 2861 | B7 |
| 2862 | C2 |
| 2863 | D2 |
| 2864 | H12 |
| 2865 | B5 |
| 2870 | F3 |
| 2871 | G3 |
| 2872 | F10 |
| 2873 | F5 |
| 2875 | G5 |
| 2876 | C2 |
| 2877 | F11 |
| 2878 | F11 |
| 2881 | F8 |
| 2882 | D5 |
| 2893 | F12 |
| 3700 | I2 |
| 3705 | H4 |
| 3706 | H4 |
| 3707 | H4 |
| 3708 | H4 |
| 3711 | H5 |
| 3713 | F8 |
| 3714 | F8 |
| 3715 | G8 |
| 3716 | H12 |
| 3718 | H3 |
| 3730 | H2 |
| 3731 | H2 |
| 3760 | A3 |
| 3761 | A3 |
| 3762 | A3 |
| 3763 | B3 |
| 3764 | C1 |
| 3766 | A5 |
| 3768 | D7 |
| 3769 | D7 |
| 3809 | H11 |
| 3814 | C12 |
| 3851 | F6 |
| 3854 | A7 |
| 3855 | B7 |
| 3858 | A7 |
| 3859 | B7 |
| 3864 | C2 |
| 3865 | C2 |
| 3868 | G14 |
| 3871 | E11 |
| 3872 | B13 |
| 3874 | B13 |
| 3875 | C12 |
| 3876 | B12 |
| 3877 | E11 |
| 3878 | C7 |
| 3879 | F6 |
| 3880 | G6 |
| 3881 | G6 |
| 3882 | F6 |
| 3883 | F6 |
| 3884 | F6 |
| 3885 | E6 |
| 3886 | G6 |
| 3887 | D12 |
| 3888 | E12 |
| 3890 | E11 |
| 3891 | F11 |
| 3893 | F11 |
| 3896 | G10 |
| 3899 | D12 |
| 5803 | F3 |
| 5804 | F3 |
| 5805 | C11 |
| 6871 | D8 |
| 6872 | D8 |
| 6873 | C8 |
| 6874 | G7 |
| 6875 | E12 |
| 6876 | C13 |
| 6877 | D12 |
| 7810 | A3 |
| 7812 | F8 |
| 7871 | G5 |
| 7873 | C10 |
| 7874 | B12 |
| 7875 | C12 |
| 7876 | H3 |
| 7878 | C1 |
| 9826 | H14 |
| 9834 | F10 |
| 9835 | G11 |
| 9838 | C14 |
| 9839 | C14 |
| 9876 | C13 |
| 9898 | E3 |
| 9899 | G3 |

## 3CDC mainboard / part 2


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I
7810 PCM1716
DAC
WCLK DATA SCLK CL16
FROM 7877 ON PART 1
LRCIN DIN BCKIN CLKO XTI XTO DGND VDD VCC 2R AGND 2R EXTR NC VOUT R AGND 1
ML MC MD MUTE MODE CS RST ZERO VCC 2L AGND 2L EXTL NC 1 VOUT L VCC 1
de_emph from7877 (part1)
MC78L05ACP 7878
+10V 3764 3R3
GNDA
5V
2860 22u 3854 100R 3858 22K 2832 3n3
2861 22u 3855 100R 3859 22K 2831 3n3
SW_INFO
POS 1 rec. TRAY POS DRIVE UP/ DOWN
1882 1880 1881 6873 6871 6872 1N4148
TO 7801 ON PART 1 EQSEL
7873
Changer Control logic
HEF4094BP
VSS VDD CP STR STB EN1 SRG8 D
O7 O6 O5 O4 O3 O2 O1 O0 Os
SHR_CL SHR_STR OE_LATCH
to/from 7877 on part 1
SICL SILD SDA
3.2V 0V SDA
7874 BC547B
3V-5V log. Level Transformer
5805 4U7 for provision only
voltage stab. 7875 BC547B
4,2V 3814 33R
6876 1N4148 9876
6877 BZX79-F3V9 3899 100R
5.6V version only
+4V +5V +5.6V +10V +3.3V
5V(5.6V)
3887 470R 5V1
6875 BZX79-C5V1
to connector board on rear side of module or combi-board
LEFT GNDA RIGHT +5V(+5.6V) GND +10V SW_INFO SHR_STR SHR_CL SICL DATA SILD GND PORE KILL_L +3V EBU_Out EBU_GND KILL_R SRDT DQSY uP_CLK GND
BASIC VERSION (15 Pin)
DIGout (19 Pin)
CD-TEXT (23 Pin)
1805
PORE KILL_L KILL_R
to/from 7877 on part 1
3868 33R EBUGND
7812 BC547B
Output enable delay circuitry
3713 22K 3714 10K 3715 100K 6874 1N4148 2881 4u7 2872 47n
TRAY-MOTOR CAROUSEL-MOTOR
RF-500TB
1851 1850 DIPMATE 1876 1878
8003 8002
9898 5803 100u 9899 5804 100u
for prov. only
7871 TDA7073A
OUT1- VDD
0V 10V
3885 100K 3883 100K 3879 10K 3881 10K 3882 47K 3886 47K 3884 3K9 3880 330R 3851 3R3
CD-TEXT INFO
4V DQSY
only during TOC-reading
3.3ms
SCLK SRDT
CD-Text circuitry
7876 LC89170M
EXCK SBSO SCOR WFCK MCK XMODE GND
VDD DQSY SRDT SCLK SW2 SW1 TEST
32 x 8 2 PORT RAM
CPU INTERF
CRC CHECK
TIMING & SYNC PROTECTION
to 7877 on part1
RCK SUB SBSY SFSY CL11
7.35KHz 11MHz
3730 33K 3731 10K 3718 4K7 3700 470R 3705 220R 3706 470R 3707 470R 3708 470R 3711 10K
2853 22n 2804 4u7 2852 47n
+4V
from 7877 on part1 DOBM 3809 470R 3716 100
EVM
...DC voltages measured in Play mode with following conditions '+A'=+10.5V and '+5V'=+5V
#.... for provision only
3CDC99-DS sheet2 2000-03-27

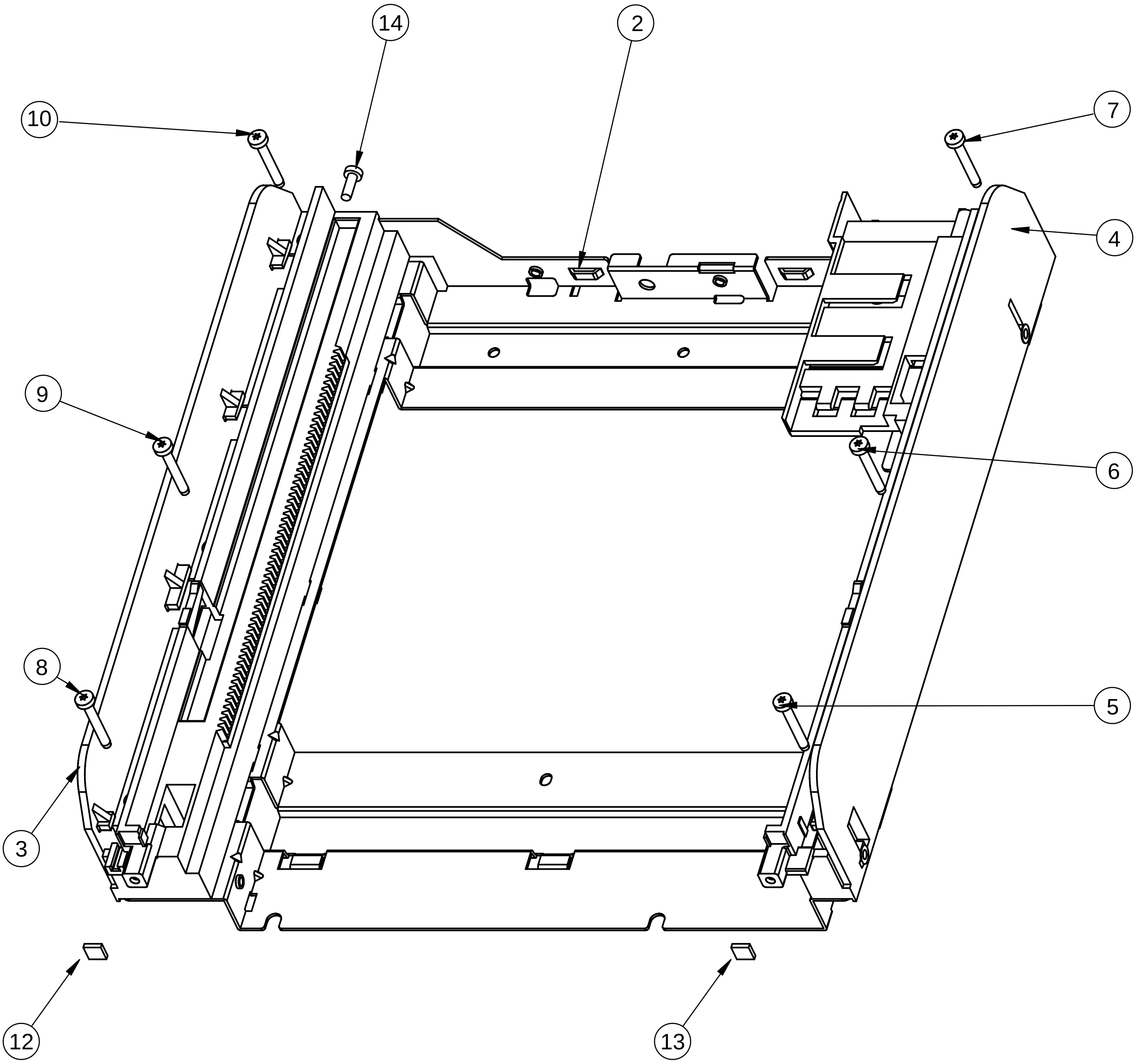

POS. 60
POS. 25
6x



## *MECHANICAL PARTSLIST 3CDC-99 MODULE*

| | | |
|---|---|---|
| 0003 | 4822 463 11235 | GUIDING LEFT |
| 0004 | 4822 463 11236 | GUIDING RIGHT |
| 0012 | 4822 466 12146 | RUBBER |
| 0013 | 4822 466 12146 | RUBBER |
| 0021 | 4822 418 10403 | DRAWER |
| 0022 | 4822 402 11236 | BRACKET TUMBLER |
| 0023 | 4822 492 11721 | SPRING |
| 0024 | 4822 492 11721 | SPRING |
| 0038 | 4822 502 12548 | SCREW M2,6x3,5 |
| 0039 | 4822 502 12548 | SCREW M2,6X3,5 |
| 0040 | 4822 463 11237 | SLIDE |
| 0041 | 4822 522 10509 | CONTROL DISC |
| 0042 | 4822 522 10492 | GEAR WHEEL |
| 0043 | 4822 528 10937 | PULLEY |
| 0044 | 4822 522 10493 | IDLER WHEEL |
| 0045 | 4822 358 10115 | BELT |
| 0046 | 4822 466 10735 | ECCENTRIC GEAR WHEEL |
| 0050 | 4822 532 12364 | WASHER |
| 0051 | 4822 532 12364 | WASHER |
| 0052 | 4822 532 12364 | WASHER |

continued on next page



### ***MECHANICAL PARTSLIST 3CDC-99 MODULE***

| | | |
|---|---|---|
| 0053 | 4822 532 12364 | WASHER |
| 0073 | 4822 502 12548 | SCREW M2,6X3,5 |
| 0074 | 4822 502 12548 | SCREW M2,6X3,5 |
| 0080 | 4822 528 10937 | PULLEY |
| 0081 | 4822 522 10494 | GEAR DRAWER |
| 0082 | 4822 358 10115 | BELT |
| 0083 | 4822 532 12364 | WASHER |
| 0084 | 4822 532 12364 | WASHER |
| 0095 | 4822 404 10985 | SUPPORT-VAM |
| 0096 | 4822 529 10387 | RUBBER DAMPER CD DRIVE, FRONT |
| 0097 | 4822 529 10387 | RUBBER DAMPER CD DRIVE, FRONT |
| 0100 | 9305 022 30201 | VAM2202/01 |
| 0115 | 4822 466 10736 | CAROUSEL |
| 0117 | 4822 532 12365 | BUSH DRAWER |
| 0123 | 4822 402 11237 | SWITCH-BRACKET |
| 0125 | 4822 401 11708 | DISC CLAMP VAM DRIVE 3CDC |

## *ELECTRICAL PARTSLIST 3CDC-99 MODULE*

### MISCELLANEOUS

| | | |
|---|---|---|
| 0035 | 4822 361 10753 | CAROUSEL MOTOR |
| 0070 | 4822 361 10753 | TRAY MOTOR |
| 1800 | 4822 265 10925 | FFC SOCKET, 15P |
| 1805 | 4822 265 11533 | FFC SOCKET, 23P |
| 1880 | 4822 276 13503 | SWITCH |
| 1881 | 4822 276 13503 | SWITCH |
| 1882 | 4822 276 13503 | SWITCH |
| 8001 | 3103 308 92020 | FLEX FOIL CABLE 23P, 420mm |
| 8005 | 3103 308 91820 | FLEX FOIL CABLE 15P, 95mm |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2800 | 4822 126 10053 | 180pF | 10% | 50V |
| 2801 | 4822 122 10466 | 220pF | 10% | 50V |
| 2802 | 4822 126 10053 | 180pF | 10% | 50V |
| 2803 | 4822 122 10466 | 220pF | 10% | 50V |
| 2804 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2805 | 4822 122 10466 | 220pF | 10% | 50V |
| 2806 | 4822 122 10466 | 220pF | 10% | 50V |
| 2807 | 4822 126 12787 | 330pF | 10% | 50V |
| 2808 | 4822 122 10466 | 220pF | 10% | 50V |
| 2809 | 5322 124 41948 | 0,47µF | 20% | 50V |
| 2810 | 4822 126 10053 | 180pF | 10% | 50V |
| 2811 | 4822 122 10466 | 220pF | 10% | 50V |
| 2812 | 4822 126 12785 | 47nF | 20% | 50V |
| 2815 | 4822 126 13174 | 33nF | 20% | 16V |
| 2816 | 4822 126 12878 | 1,5nF | 10% | 16V |
| 2818 | 4822 126 12878 | 1,5nF | 10% | 16V |
| 2822 | 4822 126 12878 | 1,5nF | 10% | 16V |
| 2823 | 4822 122 33848 | 47pF | 5% | 50V |
| 2824 | 4822 126 12785 | 47nF | 20% | 50V |
| 2825 | 4822 121 51387 | 10nF | 20% | 16V |
| 2826 | 4822 124 80231 | 47µF | 20% | 16V |
| 2828 | 4822 124 40433 | 47µF | 20% | 25V |
| 2829 | 4822 124 21732 | 10µF | 20% | 25V |
| 2830 | 4822 121 51387 | 10nF | 20% | 16V |
| 2831 | 4822 122 10577 | 3,3nF | 10% | 16V |
| 2832 | 4822 122 10577 | 3,3nF | 10% | 16V |
| 2833 | 4822 122 33069 | 33pF | 5% | 50V |
| 2834 | 4822 122 33069 | 33pF | 5% | 50V |
| 2835 | 4822 126 12785 | 47nF | 20% | 50V |
| 2837 | 4822 124 40433 | 47µF | 20% | 25V |
| 2838 | 4822 124 40248 | 10µF | 20% | 63V |
| 2839 | 4822 124 40433 | 47µF | 20% | 25V |
| 2840 | 4822 126 12882 | 100nF | 20% | 50V |
| 2841 | 4822 126 12702 | 270pF | 10% | 50V |
| 2842 | 4822 126 12339 | 2,2nF | 10% | 16V |
| 2844 | 4822 126 12702 | 270pF | 10% | 50V |
| 2849 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2850 | 4822 122 33197 | 1nF | 10% | 50V |
| 2851 | 4822 124 40433 | 47µF | 20% | 25V |
| 2852 | 4822 126 12785 | 47nF | 20% | 50V |
| 2853 | 4822 126 11585 | 22nF | 20% | 50V |
| 2854 | 4822 126 12785 | 47nF | 20% | 50V |
| 2855 | 4822 122 33519 | 470pF | 10% | 50V |
| 2856 | 4822 122 33848 | 47pF | 5% | 50V |
| 2857 | 4822 121 51387 | 10nF | 20% | 16V |
| 2858 | 4822 124 81151 | 22µF | 20% | 50V |
| 2859 | 4822 121 51387 | 10nF | 20% | 16V |
| 2860 | 4822 124 41596 | 22µF | 20% | 50V |
| 2861 | 4822 124 41596 | 22µF | 20% | 50V |
| 2862 | 4822 124 11912 | 220µF | 20% | 6,3V |

### CAPACITORS

| | | | | |
|---|---|---|---|---|
| 2863 | 4822 124 11912 | 220µF | 20% | 6,3V |
| 2865 | 4822 126 12882 | 100nF | 20% | 50V |
| 2869 | 4822 126 12785 | 47nF | 20% | 50V |
| 2872 | 4822 126 12785 | 47nF | 20% | 50V |
| 2873 | 4822 124 12233 | 47µF | 20% | 25V |
| 2875 | 4822 126 11585 | 22nF | 20% | 50V |
| 2876 | 4822 126 12785 | 47nF | 20% | 50V |
| 2877 | 4822 122 33848 | 47pF | 5% | 50V |
| 2878 | 4822 122 10466 | 220pF | 10% | 50V |
| 2879 | 4822 126 12785 | 47nF | 20% | 50V |
| 2880 | 4822 126 12882 | 100nF | 20% | 50V |
| 2881 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2882 | 4822 124 81151 | 22µF | 20% | 50V |
| 2884 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2885 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2887 | 4822 126 12882 | 100nF | 20% | 50V |
| 2888 | 4822 124 40769 | 4,7µF | 20% | 100V |
| 2891 | 4822 122 10576 | 1,8nF | 10% | 16V |
| 2892 | 4822 126 11714 | 4,7nF | 20% | 16V |
| 2893 | 4822 122 10466 | 220pF | 10% | 50V |

### RESISTORS

| | | | | |
|---|---|---|---|---|
| 3700 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3705 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3706 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3707 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3708 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3709 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3711 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3713 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3714 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3715 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3716 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3718 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3728 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3730 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3731 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3760 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3761 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3762 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3763 | 4822 116 52231 | 820Ω | 5% | 0,5W |
| 3764 | 4822 052 10338 | 3,3Ω | | NFR25 |
| 3766 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3768 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3769 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3800 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3801 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3802 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3803 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3805 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3806 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3807 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3808 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3809 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3811 | 4822 116 52251 | 18kΩ | 5% | 0,5W |
| 3812 | 4822 053 10228 | 2,2Ω | 5% | 1W |
| 3814 | 4822 116 52191 | 33Ω | 5% | 0,5W |
| 3815 | 4822 052 10478 | 4,7Ω | 5% | NFR |
| 3816 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3817 | 4822 116 52298 | 680kΩ | 5% | 0,5W |
| 3819 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3820 | 4822 116 52289 | 5,6kΩ | 5% | 0,16W |

## *ELECTRICAL PARTSLIST 3CDC-99 MODULE*

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3821 | 4822 116 52289 | 5,6kΩ | 5% | 0,16W |
| 3822 | 4822 116 52263 | 2,7kΩ | 5% | 0,5W |
| 3823 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3824 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3825 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3826 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3827 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3828 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3831 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3832 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3833 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3834 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3835 | 4822 052 10338 | 3,3Ω | | NFR25 |
| 3837 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3838 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3839 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3840 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3841 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3842 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3843 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3844 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3845 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3846 | 4822 050 23303 | 33kΩ | 1% | 0,6W |
| 3847 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3848 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3849 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3850 | 4822 116 52276 | 3,9kΩ | 5% | 0,5W |
| 3851 | 4822 052 10338 | 3,3Ω | | NFR25 |
| 3852 | 4822 052 10228 | 2,2Ω | 5% | 0,33W |
| 3853 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3854 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3855 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3857 | 4822 116 52191 | 33Ω | 5% | 0,5W |
| 3858 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3859 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3862 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3863 | 4822 116 52191 | 33Ω | 5% | 0,5W |
| 3864 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3865 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3866 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3867 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3869 | 4822 050 24708 | 4,7Ω | 1% | 0,6W |
| 3870 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3871 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3872 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3873 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3874 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3875 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3876 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3877 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3878 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3879 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3880 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3881 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3882 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3883 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3884 | 4822 116 52276 | 3,9kΩ | 5% | 0,5W |
| 3885 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3886 | 4822 116 83884 | 47kΩ | 5% | 0,16W |
| 3887 | 4822 116 83883 | 470Ω | 5% | 0,16W |

RESISTORS

| | | | | |
|---|---|---|---|---|
| 3888 | 4822 050 21003 | 10kΩ | 2% | 0,25W |
| 3889 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3890 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3891 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3892 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3893 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3894 | 4822 116 52191 | 33Ω | 5% | 0,5W |
| 3895 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3897 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3899 | 4822 116 52175 | 100Ω | 5% | 0,5W |

COILS

| | | |
|---|---|---|
| 1810 | 4822 242 10849 | CRYSTAL 8,46MHz |

DIODES

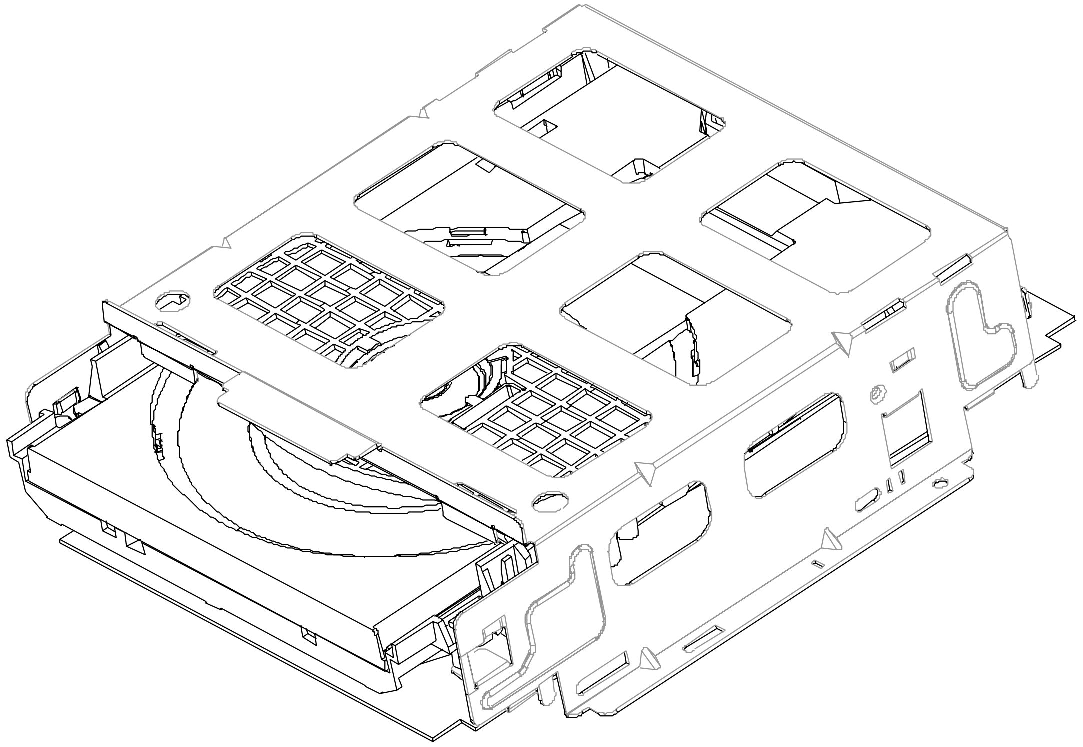
| | | |
|---|---|---|
| 6871 | 4822 130 30621 | 1N4148 |
| 6872 | 4822 130 30621 | 1N4148 |
| 6873 | 4822 130 30621 | 1N4148 |
| 6874 | 4822 130 30621 | 1N4148 |
| 6875 | 3198 010 55180 | DIO REG BZX79-B5V1 |
| 6877 | 3198 010 53980 | DIO REG BZX79-B3V9 |

TRANSISTORS

| | | |
|---|---|---|
| 7812 | 4822 130 40959 | BC547B |
| 7874 | 4822 130 40959 | BC547B |
| 7875 | 4822 130 40959 | BC547B |

INTEGRATED CIRCUITS

| | | |
|---|---|---|
| 7801 © | 4822 209 17286 | TZA1024T/N1 HF-AMPLIFIER |
| 7806 | 9352 628 49112 | IC TDA7073A/N4 |
| 7807 | 9352 628 49112 | IC TDA7073A/N4 |
| 7810 © | 8203 303 11278 | D/A CONVERTER PCM1716 |
| 7871 | 9352 628 49112 | IC TDA7073A/N4 |
| 7873 | 5322 209 10421 | HEF4094BP |
| 7876 © | 4822 209 16143 | LC89170M |
| 7877 © | 9352 641 80557 | SAA7324H/M2B CD10/M2B |
| 7878 | 4822 209 72042 | MC78L05ACP |



# CDR99 Module

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Blockdiagram....................................................................11-2

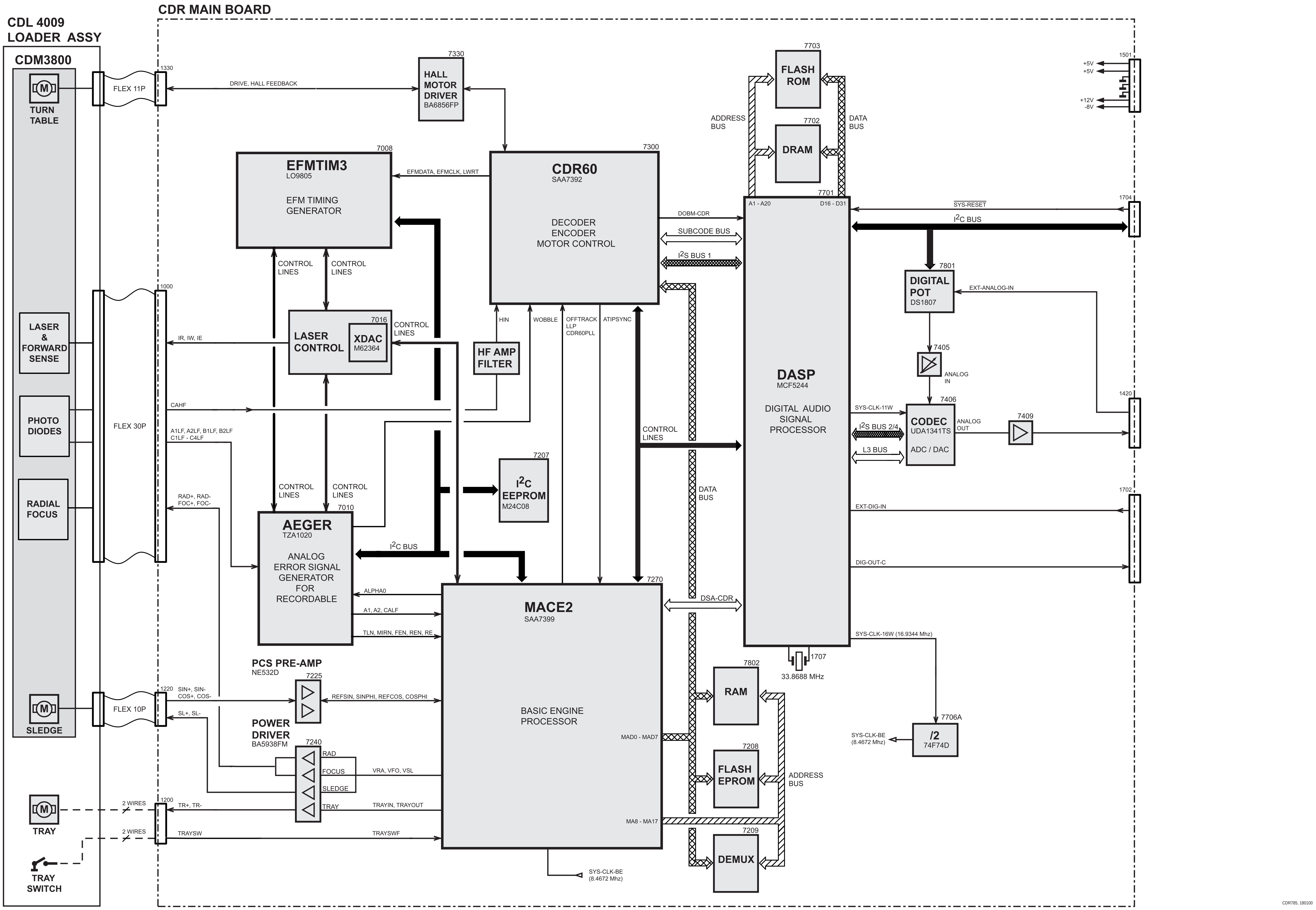
## SERVICING HINT

The **CD-R/W module** will be **exchanged completely** in case of a failure. For checking the CD R/W module use the Service Testprogram (chapter 3-4).

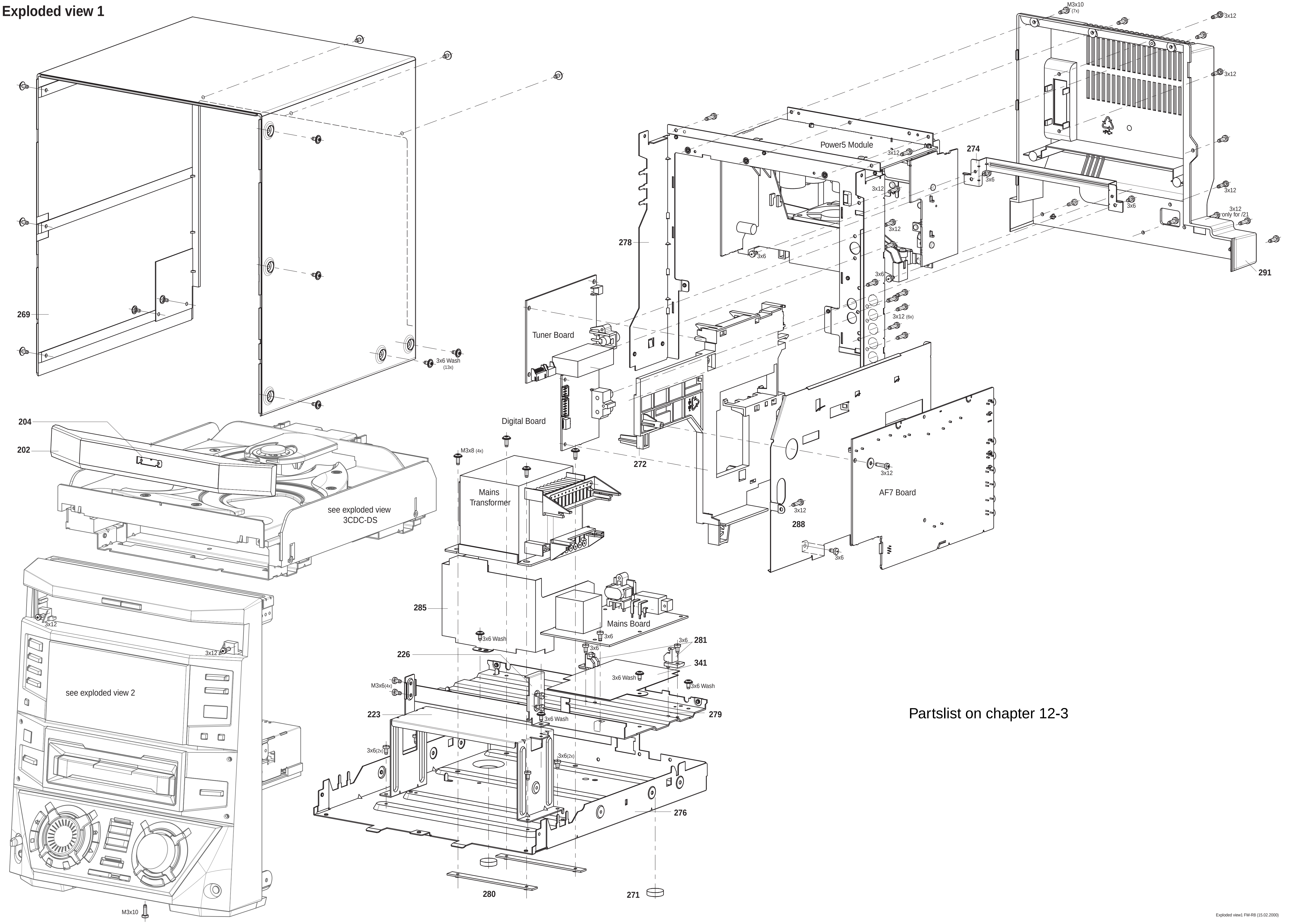
The defective CD-R/W module has to be returned for central repair. Service Code for new Module = **3104129 52590**

| | | |
|---|---|---|
| Available circuit descriptions: | *The Basics of Compact Disc Recordable/Rewritable* | **4822 725 25242** |
| | *3rd generation Compact Disc Recording* | **3104 125 40100** |

# BLOCK DIAGRAM CDR-MODULE

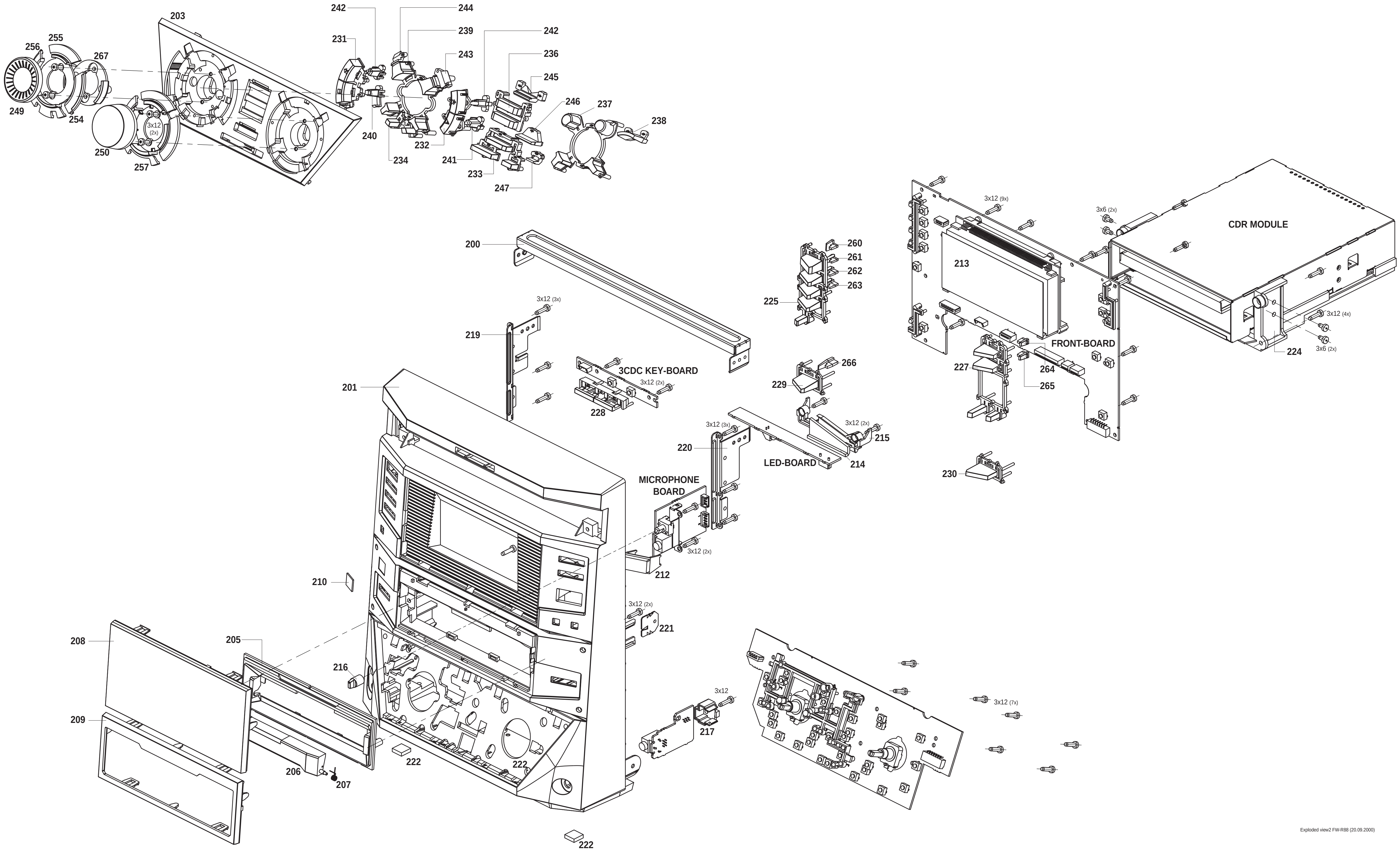

CDR MAIN BOARD
CDL 4009
LOADER ASSY
CDM3800
TURN TABLE
LASER & FORWARD SENSE
PHOTO DIODES
RADIAL FOCUS
SLEDGE
TRAY
TRAY SWITCH
2 WIRES
2 WIRES
FLEX 11P
FLEX 30P
FLEX 10P
1330
1000
1220
1200
DRIVE, HALL FEEDBACK
7330
HALL MOTOR DRIVER
BA6856FP
7008
EFMTIM3
LO9805
EFM TIMING GENERATOR
EFMDATA, EFMCLK, LWRT
7300
CDR60
SAA7392
DECODER ENCODER MOTOR CONTROL
CONTROL LINES
CONTROL LINES
CONTROL LINES
CONTROL LINES
CONTROL LINES
CONTROL LINES
7016
LASER CONTROL
XDAC
M62364
IR, IW, IE
CAHF
A1LF, A2LF, B1LF, B2LF
C1LF - C4LF
RAD+, RAD-
FOC+, FOC-
HIN
WOBBLE
OFFTRACK
LLP
CDR60PLL
ATIPSYNC
HF AMP FILTER
7207
$I^2C$ EEPROM
M24C08
7010
AEGER
TZA1020
ANALOG ERROR SIGNAL GENERATOR FOR RECORDABLE
$I^2C$ BUS
ALPHA0
A1, A2, CALF
TLN, MIRN, FEN, REN, RE
PCS PRE-AMP
NE532D
7225
SIN+, SIN-
COS+, COS-
SL+, SL-
REFSIN, SINPHI, REFCOS, COSPHI
POWER DRIVER
BA5938FM
7240
RAD
FOCUS
SLEDGE
TRAY
VRA, VFO, VSL
TR+, TR-
TRAYIN, TRAYOUT
TRAYSW
TRAYSWF
7270
MACE2
SAA7399
BASIC ENGINE PROCESSOR
MAD0 - MAD7
MA8 - MA17
SYS-CLK-BE
(8.4672 Mhz)
7703
FLASH ROM
7702
DRAM
ADDRESS BUS
DATA BUS
7701
A1 - A20
D16 - D31
DOBM-CDR
SUBCODE BUS
$I^2S$ BUS 1
DATA BUS
DSA-CDR
DASP
MCF5244
DIGITAL AUDIO SIGNAL PROCESSOR
1707
33.8688 MHz
7802
RAM
7208
FLASH EPROM
7209
DEMUX
ADDRESS BUS
1501
+5V
+5V
+12V
-8V
1704
SYS-RESET
$I^2C$ BUS
7801
DIGITAL POT
DS1807
EXT-ANALOG-IN
7405
ANALOG IN
7406
SYS-CLK-11W
$I^2S$ BUS 2/4
L3 BUS
CODEC
UDA1341TS
ADC / DAC
ANALOG OUT
7409
1420
1702
EXT-DIG-IN
DIG-OUT-C
SYS-CLK-16W (16.9344 Mhz)
7706A
/2
74F74D
SYS-CLK-BE
(8.4672 Mhz)
CDR785, 180100

## Exploded view 1


M3x10 (7x)
3x12
3x12
274
3x12
Power5 Module
3x6
3x12
3x6
3x12
3x12 only for /21
278
3x6
3x12
291
3x6
3x12 (6x)
Tuner Board
3x6 Wash (13x)
269
Digital Board
204
202
M3x8 (4x)
272
3x12
Mains Transformer
AF7 Board
3x12
288
see exploded view 3CDC-DS
3x6
3x12
285
Mains Board
3x12
3x6 Wash
3x6
3x6
281
226
3x6
341
3x6 Wash
3x6 Wash
M3x6(4x)
see exploded view 2
223
3x6 Wash
279
3x6(2x)
3x6(2x)
276
280
271
M3x10

Partslist on chapter 12-3

## Exploded view 2


242
244
239
243
242
236
245
246
237
238
231
240
234
232
241
233
247
203
255
256
267
249
254
250
257
3x12 (2x)
200
3x12 (3x)
219
201
3CDC KEY-BOARD
3x12 (2x)
228
260
261
262
263
225
266
229
3x12 (3x)
3x12 (2x)
215
220
214
LED-BOARD
MICROPHONE BOARD
3x12 (2x)
212
210
3x12 (2x)
221
208
205
216
209
206
207
222
222
222
3x12
217
3x12 (7x)
3x12 (9x)
3x6 (2x)
CDR MODULE
213
FRONT-BOARD
227
264
265
3x12 (4x)
3x6 (2x)
224
230

Exploded view2 FW-R88 (20.09.2000)

## MECHANICAL PARTS

| | | |
|---|---|---|
| 201 | 3103 308 10600 | CABINET FRONT not for /37 |
| 201 | 3103 308 10610 | CABINET FRONT for /37 only |
| 202 | 3103 308 10590 | COVER 3CDC TRAY |
| 203 | 3103 307 99850 | CABINET INSERT |
| 204 | 4822 454 13408 | WORDMARK PHILIPS |
| 205 | 3103 308 10740 | FRAME ORNAMENTAL |
| 206 | 3103 304 67260 | DOOR CDR |
| 207 | 3103 301 06490 | SPRING DOOR CDR |
| 208 | 3103 308 10620 | WINDOW DISPLAY |
| 209 | 3103 308 10880 | WINDOW CDR |
| 212 | 3103 304 68130 | LENS IR |
| 213 | 3103 304 68990 | CUTSHEET-FTD |
| 214 | 3103 304 67810 | LIGHT GUIDE CDR |
| 215 | 3103 304 68120 | HOLDER LIGHT GUIDE |
| 216 | 3103 307 98560 | KNOB MIC-LEVEL |
| 222 | 4822 462 40683 | FOOT RUBBER |
| 225 | 3103 307 98390 | BUTTON SET POWER |
| 226 | 3103 301 45270 | BRACKET CDR RIGHT |
| 227 | 3103 307 98570 | BUTTON SET AUX/TUNER |
| 228 | 3103 307 98400 | BUTTON SET 3CDC |
| 229 | 3103 307 98410 | BUTTON SELECT CDR |
| 230 | 3103 307 98420 | BUTTON CDR-OPEN |
| 231 | 3103 307 98460 | BUTTON SET STOP |
| 232 | 3103 307 98470 | BUTTON SET PLAY |
| 233 | 3103 307 98490 | BUTTON SET REC-MODE |
| 234 | 3103 307 98500 | BUTTON SET TRACK/TEXT |
| 235 | 3103 308 10670 | BUTTON INCREDIBLE STEREO |
| 236 | 3103 308 10640 | BUTTON SET DISC-REC |
| 237 | 3103 308 10690 | BUTTON SET WOOX |
| 238 | 3103 304 69800 | LIGHTGUIDE WOOX |
| 239 | 3103 308 10630 | BUTTON SET JOG |
| 240 | 3103 304 67470 | LIGHT GUIDE STOP |
| 241 | 3103 304 67480 | LIGHT GUIDE PLAY |
| 242 | 3103 304 67490 | LIGHT GUIDE PREV/NEXT |
| 243 | 3103 304 67550 | LIGHT GUIDE YES |
| 244 | 3103 304 68370 | LIGHT GUIDE NO |
| 245 | 3103 304 67560 | LIGHTGUIDE DISC REC |
| 246 | 3103 304 68210 | LIGHT GUIDE REC-MODE |
| 249 | 3103 304 07030 | JOG ROTARY |
| 250 | 3103 307 98330 | VOLUME ROTARY |
| 254 | 3103 308 10680 | COVER JOG PLAY |
| 255 | 3103 308 10650 | COVER JOG YES/NO |
| 256 | 3103 308 10660 | COVER JOG STOP |
| 257 | 3103 307 99690 | COVER VOLUME WOOX |
| 260 | 3103 304 67360 | LIGHT GUIDE POWER |
| 261 | 3103 304 67370 | LIGHT GUIDE CD1 |
| 262 | 3103 304 67380 | LIGHT GUIDE CD2 |
| 263 | 3103 304 67390 | LIGHT GUIDE CD3 |
| 264 | 3103 304 67870 | LIGHT GUIDE AUX |
| 265 | 3103 304 67880 | LIGHT GUIDE TUNER |
| 266 | 3103 304 67930 | LIGHT GUIDE CDR |
| 267 | 3103 304 67540 | LIGHT GUIDE JOG ROTARY |
| 271 | 4822 462 40683 | FOOT RUBBER |
| 385 | 3104 128 92560 | MAINS CORD, UL |
| 385 | 4622 004 50290 | CORDSET |

## SPEAKER BOX

| | | |
|---|---|---|
| | 9965 000 07850 | SPEAKER BOX LEFT not for /37 |
| | 9965 000 07929 | SPEAKER BOX RIGHT not for /37 |
| | 9965 000 07930 | SPEAKER BOX LEFT only for /37 |
| | 9965 000 07931 | SPEAKER BOX RIGHT only for /37 |

## MISCELLANEOUS

| | | |
|---|---|---|
| 351 | 4822 303 50063 | FM AERIAL |
| 351 | 4822 320 11094 | FM ANTENNA WIRE /37 |
| 356 | 3139 228 86341 | REMOTE CONTROL RC2578/01 |
| 384 | 4822 303 50082 | AM FRAME AERIAL |
| 5001 | 3103 308 30520 | MAINS TRANSFORMER /21 |
| 5001 | 3103 308 30510 | MAINS TRANSFORMER /22 |
| 5001 | 3103 308 30810 | MAINS TRANSFORMER /37 |
| 8002 | 4822 320 12335 | FLEX FOIL CABLE,17p, 125mm |
| 8004 | 3103 308 92450 | FLEX FOIL CABLE, 6p, 140mm |
| 8006 | 3103 308 92320 | FLEXFOIL CABLE, 7p, 280mm |
| 8009 | 3103 308 92330 | FLEX FOIL CABLE, 5p, 280mm |
| 8013 | 3103 308 92340 | FLEX FOIL CABLE, 5p, 280mm |
| 8014 | 3103 308 92470 | FLEX FOIL CABLE, 19p, 400mm |
| 8015 | 3103 308 92360 | FLEX FOIL CABLE, 4p, 280mm |

## REPLACEMENTS

| | | |
|---|---|---|
| | 3104129 52590 | CD-R/W MODULE |